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ABSTRACT

A project collected data from small and medium-sized firms (employing fewer than 500) in Michigan concerning workplace education programs. It addressed why firms were or were not offering programs, program characteristics, and program impacts on firms and employees. Case studies of 28 businesses were undertaken from May 1991-July 1992 and a mail/telephone survey of small businesses was conducted in early 1992. Findings indicated that 25-40 percent of production workers had deficiencies in general basic skills according to employers. Fewer than 5 percent of small and medium-sized businesses offered workplace education programs. They were motivated by four major factors: receiving a subsidy to underwrite program costs, preparing workers to benefit from job training, meeting customer requirements or improving customer relations, and improving employee well-being. Companies with programs tended to be larger in employment size, pay higher wages, and spend more on training. As many as one-third of firms without programs had never considered providing workplace education. At least 40 percent of firms with programs used company staff as instructors. For programs with external providers, mathematics was the most widely taught subject. Major impacts of workplace education programs were on employee self-confidence, ability to function as a team, and improvements in mathematics and communication skills. (An appendix provides short standardized summaries of the 28 case studies.) (YLB)

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E. UPJOHN INSTITUTE
FOR EMPLOYMENT RESEARCH

Workplace Education Programs in Small and Medium-Sized Michigan Firms

Kevin Hollenbeck
William Anderson

92-13

December 1992

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STAFF WORKING PAPERS

WORKPLACE EDUCATION PROGRAMS IN SMALL AND MEDIUM-SIZED MICHIGAN FIRMS

by

Kevin Hollenbeck and William Anderson

August 1992

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ABSTRACT

This paper presents a systematic, baseline picture of workplace education programs in small and medium-sized businesses (less than 500 employees) in Michigan. Specifically, it addresses why some firms are offering and other firms are not offering workplace education programs, what are the characteristics of the programs being provided, and what are the impacts of these programs on firms and employees. The paper draws upon two data sources. Case studies of 28 Michigan businesses were undertaken between May 1991 and July 1992 and a combination mail/telephone survey of small businesses in Michigan was conducted in early 1992. The paper finds that a significant share of the employed population, perhaps 25 to 40 percent of hourly workers, have basic skills difficulties that are reported to impair their productivity. Yet very few of the workers have an opportunity to receive education in basic skills through their workplace.

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WORKPLACE EDUCATION PROGRAMS IN SMALL AND MEDIUM-SIZED MICHIGAN FIRMS

by

Kevin Hollenbeck and William Anderson

1. Introduction

Staff from the W.E. Upjohn Institute have recently completed a project that involved an extensive amount of data collection from small and medium-sized firms (employment less than 500) in Michigan concerning workplace education programs. This paper documents this study and summarizes the data that were collected.

The major findings of this study may be summarized as follows:

- Between 25 and 40 percent of production workers have deficiencies in general basic skills according to employers; math and problem solving skills seem to be areas of greater need than reading, writing, or speaking English; manufacturing workforces seem to have greater needs than non-manufacturing
- Less than 5 percent of small and medium-sized businesses offer workplace education programs, although this estimate is difficult to pin down and has considerable uncertainty. However, there is little doubt that most workers with basic skills deficiencies have no opportunity to improve their skills through workplace programs
- Firms that offer programs are motivated by four major factors—receiving a subsidy to underwrite partially program costs, preparing workers so that they may benefit from job training, meeting customer requirements or improving customer relations, and improving employee well-being
- Among all small or medium-sized firms, companies with programs tend to be larger in employment size, pay higher wages, and spend more on training than firms without programs
- Firms that have been reorganizing or restructuring their operations toward "high performance" workplaces are far more likely to be offering workplace education programs
- As many as one-third of firms without programs have never considered the issue of providing workplace education; for other firms without programs, the

main reasons for not offering them were that basic skills were not a problem for their employees, programs were too expensive, firms did not have enough staff to manage a program, or firms did not have enough information about how to start and operate a program

- Almost one-fourth of firms without programs indicated that they were interested in starting one

- Many firms with programs—40 percent or more—use company staff as instructors; among the other firms with programs, about half were affiliated with a community college and half with a public school district

- For programs with external providers, mathematics was the most widely taught subject; the most extensive programs included both math and reading/writing; interpersonal skills and problem solving skills predominated in programs that used internal company staff as instructors, but were also taught in a small share of programs that had external providers

- The major impacts of workplace education programs are on employee morale, employee self-confidence, ability to function as a team, and improvements in basic skills in mathematics and communication.

The project utilized two types of data collection—a series of case studies of selected firms and a sample survey of all small firms. Most of the case studies preceded the survey and involved extensive on site interviews with company and provider organization staff. The purpose of the case studies was to observe the general context and motivation of firms that had implemented workplace education programs and to generate hypotheses that could be tested with the survey data. The purpose of the survey was to "cast a broader net" and collect information about a larger sample of firms. Furthermore, the survey systematically asked specific questions to allow statistical testing of hypotheses.

The next section of the paper documents more thoroughly the methodology underlying the case studies and the survey. Section three presents general results from the survey of firms together with confirmatory or, in some cases, conflicting data from the case studies.

The final section summarizes key findings. The third section of the paper presents succinct summaries, in a standard format, of each of the case studies.

2. Methodology

2.1 Case Studies—Phase I

A major purpose of the study was to determine why some small or medium-sized firms, albeit a very small share of such firms, offer a workplace education program, whereas most other firms don't. In order to investigate this question, we conducted site visits in firms with programs, and in otherwise similar firms without programs. Specifically, the design of the case study component of the research was based on the concept of identifying triplets of firms, two of which have a workplace education program and one that doesn't. A triplet was defined as three firms operating in the same industry, operating in the same geographic area, and employing approximately the same number of individuals. This design would enable the comparison of firms with and without programs while holding constant, or controlling, industry, area, and size of firm. To distinguish between industries, a total of seven triplets were to be studied—five manufacturing sector triplets and two non-manufacturing sector triplets. This design thus specified 21 case studies, plus pre-tests in 2 additional firms.

Table 1 indicates the particular industries that were chosen for the pre-tests and case studies and the employment size and general location of the firms that agreed to participate in the studies. It was not possible ex post to conform precisely to the design for various

Table 1

General Characteristics of Pre-test and Phase I
Case Study Firms

Industry (SIC)	Firm ID	Location	Program?	Employment Size
Pre-test firms				
Paperboard Containers and Boxes (265)	1	Kalamazoo MSA	Yes	173
Plastics Products (3089)	2	Kalamazoo MSA	No	167
Phase I firms				
I. Public Building & Related Furniture (253)	1	Grand Rapids MSA	Yes	437
	2	Grand Rapids MSA	Yes	400
	3	Kalamazoo MSA	Yes	247
II. Plastics Products (3089)	1	Suburban Detroit	Yes	425
	2	Grand Rapids MSA	Yes	396
	3	Suburban Detroit	No	250
III. Fabricated Metal Products (34)	1	Jackson MSA	Yes	221
	2	Suburban Detroit	No	79
IV. Misc. Machinery, exc. Electrical (359)	1	Suburban Detroit	Yes	75
	2	Suburban Detroit	Yes	239
	3	Suburban Detroit	No	106
V. Electric Lighting & Wiring Equip. (364)	1	Battle Creek MSA	Yes	325
	2	Battle Creek MSA	No	398
	3	Kalamazoo MSA	No	382
VI. Hotels, Motels, & Tourist Courts (701)	1	Northern Lower Peninsula	No	475
	2	Northern Lower Peninsula	No	200
	3	Northern Lower Peninsula	No	15
VII. Hospitals (8062)	1	South Central	Yes	607
	2	Kalamazoo MSA	No	300
	3	South Central	No	59
	4	South Central	No	750

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reasons. First of all, the case studies imposed the burden on the participating companies of having project staff on site for a day interviewing various company personnel, so it was difficult to get companies to agree to participate. Second, the incidence of workplace education programs is not large, so finding two firms with programs in the same location and same industry was difficult. Third, in some cases, preliminary information that was obtained via telephone indicating that a firm had a program, turned out to be inaccurate or miscommunicated. Finally, in a couple of instances, firms that had consented to participate cancelled their involvement at the last moment. Nevertheless, as the table shows, we did conduct 21 case studies in seven industries (in one industry, we studied only 2 firms, and in another, we visited 4 firms).

At each of the firms, interviews were conducted with the general manager or owner, human resources manager, training director (if applicable), 2 or 3 supervisors, 3 to 7 employees, and a union representative, if appropriate. If the company had a program, then additional interviews were held with the coordinator of the providing organization and an instructor. Where possible, we attended actual instructional periods to get a first-hand feel for these programs.

2.2 Case Studies—Phase II

A second phase of case studies was conducted after all of site visits to the firms listed in table 1 had been completed. These case studies were all with firms in the eastern or southeastern part of the State and all with firms that had programs. The purpose of these second phase case studies was to observe programs that differed in operating characteristics from those we had observed in the first phase, and in some of the cases, the companies

were, in fact, large businesses, so that we could compare and contrast programs in small and large businesses. Table 2 lists the Phase II sites. All together, a total of 28 firms were visited during the two phases of case studies.

2.3 Survey

The survey data reported here were collected through a complex process involving four different survey forms and two sample frames. The overall process is illustrated in figure 1. The first sample for this study was a simple random sample of the membership list of the National Association of Manufacturers (NAM) for firms with less than 500 employees. This sample is representative of the small business membership of that organization, which, of course, is limited to manufacturing firms. These firms were sent a "Survey of Workplace Education," which yielded 42 responses from Michigan firms.[1] In this report, we refer to this survey as the "NAM" survey.

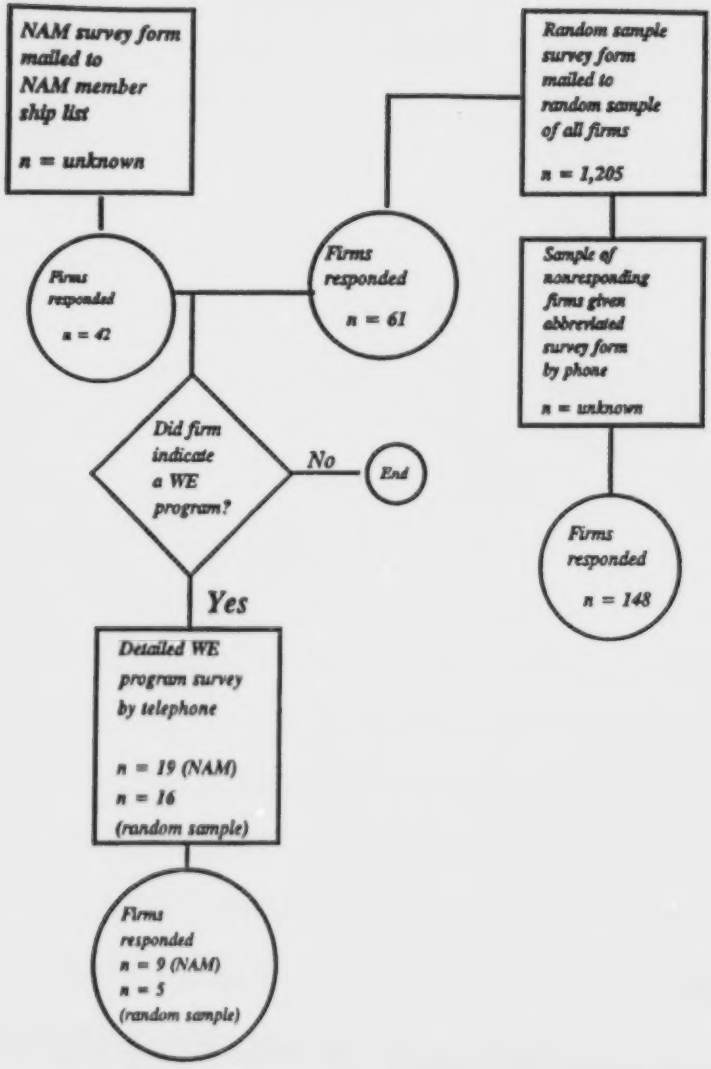
To supplement this survey, SIPA prepared a nearly identical survey instrument and mailed it to a random sample of firms from a commercial mailing list. This list covered all industries, except for agricultural, extractive industries, educational, and governmental sectors. Table 3 presents an industry breakdown of the Michigan firms in that list, which initially contained 1,220 firms but was reduced to 1,141 because 79 surveys were returned as undeliverable. From the initial mailing, 61 firms (5.7 percent) responded to this"National Survey on Workplace Education" (referred to as "Nation" in the summary portion of table 3).

[1]Since the National Association of Manufacturers did not release their mailing list information for Michigan, we are unable to compute response rates for the NAM survey.

Table 2

General Characteristics of Phase II
Case Study Firms

Industry (SIC)	Location	Program?	Employment Size
1. Plastics Products (3089)	Flint MSA	Yes	187
2. Educational Services (8221)	Detroit MSA	Yes	22,000
3. Transportation Equipment (3714)	Detroit MSA	Yes	1,122
4. Business Services (7389)	Flint MSA	Yes	70
5. Chemicals and Allied Products (2899)	Suburban Detroit	Yes	59



Total responses	*251*
Total with WE program (self-report)	*53*

Figure 1. Process followed for Michigan respondents in SIPA workplace education survey

Table 3

Industry Distribution Survey Mailing List for National Survey and Responses, by Industry

Industry (SIC)	Firms	Percent	Responses	Response Rate
Construction (15..17)	60	5.0	10	16.7
Manufacturing	504	41.8	107	21.2
Food and kindred products (20)	41	3.4	7	17.1
Textile mill products (22)	1	0.1	0	0.0
Apparel (23)	9	0.7	0	0.0
Lumber and wood products (24)	11	0.9	5	45.5
Furniture and fixtures (25)	13	1.1	3	23.1
Paper and allied products (26)	19	1.6	4	21.1
Printing, publishing (27)	31	2.6	4	12.9
Chemicals (28)	29	2.4	3	10.3
Petroleum refining (29)	4	0.3	0	0.0
Rubber and misc. plastics (30)	52	4.3	11	21.2
Stone, clay, glass (32)	14	1.2	3	21.4
Primary metals (33)	32	2.7	9	28.1
Fabricated metals (34)	75	6.2	24	32.0
Industrial & comm. equipment (35)	90	7.5	20	22.2
Electrical equipment (36)	30	2.5	4	13.3
Transportation equipment (37)	24	2.0	6	25.0
Instruments (38)	22	1.8	3	13.6
Miscellaneous manufacturing (39)	7	0.6	0	0.0
Transportation, comm. & utilities	32	2.7	5	15.6
Local, suburban transit (41)	1	0.1	0	0.0
Motor freight & warehousing (42)	12	1.0	4	33.3
Water transportation (44)	2	0.2	0	0.0
Air transportation (45)	1	0.1	0	0.0
Transportation services (47)	3	0.2	0	0.0
Communications (48)	10	0.8	1	10.0
Electric, gas, sanitary (49)	3	0.2	0	0.0
Wholesale trade - durables (50)	70	5.8	16	22.9
Wholesale trade - nondurables (51)	25	2.1	3	12.0
Retail trade	136	11.3	16	11.8
Building materials, hardware (52)	4	0.3	0	0.0
General merchandise (53)	37	3.1	4	10.8
Food stores (54)	15	1.2	2	13.3
Automotive dealers (55)	22	1.8	4	18.2
Apparel stores (56)	9	0.7	1	11.1
Home furniture, furnishings (57)	5	0.4	1	20.0
Eating and drinking places (58)	26	2.2	1	3.8
Miscellaneous retail (59)	18	1.5	3	16.7

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Table 3
(Continued)

Industry (SIC)	Firms	Percent	Responses	Response Rate
Finance, insurance, real estate	184	15.3	19	10.3
Depository institutions (60)	150	12.4	16	10.7
Nondepository credit (61)	21	1.7	2	9.5
Security & commodity brokers (62)	1	0.1	0	0.0
Insurance carriers (63)	2	0.2	1	50.0
Insurance agents (64)	3	0.2	0	0.0
Real estate (65)	4	0.3	0	0.0
Other investment offices	3	0.2	0	0.0
Services	316	26.2	31	9.8
Hotels, other lodging (70)	11	0.9	1	9.1
Personal services (72)	10	0.8	3	30.0
Business services (73)	49	4.1	7	14.3
Automotive repair (75)	2	0.2	0	0.0
Motion pictures (78)	2	0.2	0	0.0
Amusement, recreation (79)	7	0.6	0	0.0
Health services (80)	75	6.2	13	17.3
Legal services (81)	9	0.7	3	33.3
Social services (83)	9	0.7	1	11.1
Museums, art galleries (84)	1	0.1	0	0.0
Membership organizations (86)	9	0.7	1	11.1
Engineering, accounting (87)	2	0.2	1	50.0
Miscellaneous services (89)	5	0.4	1	20.0
National security (97)	2	0.2	1	50.0
Nonclassifiable (99)	1	0.1	1	100.0
Total	1205		209	17.3

Summary of Survey Observations

Survey	Observations	Follow-up Survey Observations
NAM	42	9
Nation	61	5
Telephone	148	
Total responses	251	

Since firms that either had, or were considering, a workplace education program would be more likely to respond to the mail survey, there is likely to be a significant nonresponse bias problem in the mailed survey returns. A telephone survey of a sample of firms that did not respond by mail[2] was conducted to attempt to gauge the nonresponse bias and to build the sample of usable data. This survey was an abbreviated version of the mail survey and was designed to determine the number of employees at the firm, whether or not the firm had a workplace education program, and, if so, characteristics of that program. The telephone survey proved more successful in terms of number of responses, adding another 148 responses and bringing the total mail and phone survey responses to 209 (18.3 percent of the initial mailing list's entries that were deliverable). Including the NAM results, usable survey responses totaled 251.

As table 3 indicates, manufacturing firms comprised 42 percent of the mailing list and yielded slightly more than 50 percent (107/209) of the mail and phone survey responses. Service sector firms, which had the next largest share of the mailing list, provided an additional 35 responses (16.1 percent). The majority of the remaining responses were evenly distributed among wholesale trade, retail trade, and finance.

Finally, of the 103 firms that responded by mail to the NAM and Nation surveys, 35 (34 percent) had a workplace education program; 19 of the 35 firms with programs came from the NAM survey, with the remaining 16 from Nation. Each of these firms received a telephone follow-up to collect details about the programs. The follow-up survey attempted to

[2]Documentation of the size and characteristics of the sample is imprecise, but it is estimated that approximately half of the mail survey nonrespondents were called. In other words, approximately, 530 firms were called.

determine the firm's reasons for starting a workplace education program, the characteristics of that program, and outcomes from the program. Of the 19 firms from NAM, 9 responded; and 5 of the 16 firms from Nation agreed to complete the follow-up survey. Given that the follow-up contains only 14 observations from a list of 35 Michigan firms with workplace education programs, the resulting data have limited statistical reliability.

Whenever possible, the descriptive statistics given in this paper combine similar survey questions from the multiple sources to maximize sample size. Furthermore, although the responses in Nation and the telephone survey were intended to mitigate the nonresponse bias problem, the paper does not address the magnitude of this problem and does not attempt to correct for it.

3. Results

This section of the paper is based mainly on the survey data. However, where appropriate, data from the case studies are used to supplement the information. The section first addresses overall workforce difficulties with basic skills, and thus presents the need for workplace education programs. Next, the characteristics of firms with programs are summarized. The following section discusses the reasons that firms gave for offering or not offering workplace education programs. Following that, sections that present the specific attributes of programs and evidence about the impact of programs are given. Finally, survey responses concerning policy scenarios are discussed.

3.1 The Need for Basic Skills Improvement

The NAM and Nation surveys provided the following definition of basic skills:

Basic skills are defined as the ability to perform the following skills at the level required by the job:

Reading and writing English, Mathematics, Speaking and understanding English, Participating in problem solving, and Interpersonal skills (e.g., effective communication, team building)

Table 4 provides data concerning the perceptions of survey respondents concerning employee difficulties with basic skills, the importance of basic skills to firms' performance, and remedial actions taken to overcome basic skills difficulties.

The wording of the questions on the NAM and Nation surveys is slightly different with respect to the incidence of basic skills difficulties, but in both cases respondents report that between 25 to 40 percent of hourly workers have some basic skills difficulties. Employers (in the "Nation" survey) report a slightly higher incidence of problems with math, problem solving, and interpersonal skills than with reading and writing. On average, 15-20 percent of workers have difficulties with reading or writing, whereas 25 percent or more have difficulties with math, problem solving, or interpersonal skills.

Our experiences in the field suggest that these figures may be low. Supervisors frequently gave estimates of worker basic skill deficiencies that were higher than estimates by owners or general managers and/or human resource managers. Furthermore, workers were often more aware than managers or supervisors of difficulties with basic skills among their co-workers and even, in some cases, among supervisory personnel. One worker told us, "I told my boss that he better start taking these classes."

Table 4

Basic Skills Difficulties, Importance of Basic Skills, and Actions Taken, by Sample

	NAM	Nation	Combined Sample
Percent of hourly employees with difficulties in			
Some basic skill	36.7%	--	--
English-language skills	20.1	--	--
Mathematics	--	25.7%	--
Reading and writing English	--	13.8	--
Speaking and understanding English	--	2.5	--
Problem solving and interpersonal skills	--	23.9	--
Extent of improvement needed in[1]			
Reading	1.83	1.25	1.52
Writing	2.20	1.49	1.80
Mathematics	2.32	1.66	1.96
Speaking and understanding English	1.21	0.84	1.01
Problem solving	2.48	1.84	2.13
Interpersonal skills	2.26	1.80	2.01
Importance of basic skills for[2]			
Firm productivity	2.90	2.74	2.82
Profits[3]	2.66	--	--
Domestic competitiveness[3]	2.63	--	--
International competitiveness[3]	2.57	--	--
Remedial actions taken because of low basic skills among hourly workers			
Increased hiring standards	69.0%	33.3%	49.5%
Reorganized jobs	40.5	37.3	38.7
Increased training	85.7	54.9	68.8
Relocated business to area with lower labor cost	2.4	2.0	2.2
Relocated business to area with more skilled workers	0.0	2.0	1.1
Sample size	42	61	103

[1] Based on a 4-point scale where: 0 means "none"; 1 means "very little"; 2 means "moderate amount"; and 3 means "very much".

[2] Based on a 4-point scale where: 0 means "not important"; 1 means "not very important"; 2 means "somewhat important"; and 3 means "very important".

[3] Question not asked on Nation survey.

In the service sector, among hospitals visited for case study interviews, top managers tended to be unaware of basic skill deficiencies among lower skilled workers in departments such as housekeeping and maintenance, whereas supervisors working closely with these people were aware of deficiencies and felt strongly that remedial training would help them do a better job.

Employers were asked to rate the extent of improvement needed in various skills, and respondents confirmed the same pattern among the skill areas. The table shows that employers felt that the extent of improvement needed was greatest in problem solving followed by mathematics and interpersonal skills. Speaking and understanding English and reading were rated lowest in terms of needed improvement. The NAM respondents, who come entirely from the manufacturing sector, indicated much higher levels of improvement were needed in all the skill areas than did the respondents from the overall random sample. This may mean that basic skills deficiencies are greater in manufacturing, although it could also be higher awareness of the importance of basic skills.

Employers were asked the extent to which basic skills were linked to the economic performance of the firm, and on average, they felt that basic skills were highly linked to productivity. The basic skills of hourly employees were also important for profit levels and competitiveness, but these relationships were not quite as strong statistically as for productivity. This finding makes sense since workers are directly responsible for their own productivity, but profits and competitiveness are affected by external factors such as the actions of other firms.

Case study evidence from service industries, such as hospitals and hotels, somewhat conflicts with survey findings. Top managers in these industries did not perceive a strong relationship between worker basic skills and productivity. With a primary focus on training for job-related skills, basic skills were generally overlooked, and the need for training considered not important.

Firms, particularly in manufacturing, have responded to the existence of low basic skills. On average, half the respondents have increased their hiring standards; almost two-thirds of the NAM respondents have done so. In effect, this response has screened out the problem for current and recent new hires. For existing workers, about 40 percent of firms have reorganized jobs to help workers with low basic skills (presumably de-skilling certain jobs) and almost 70 percent have increased training.

Increased hiring standards were found also in case study firms visited. Several automotive suppliers expressed the interest and willingness to offer basic skills training to current workers with valued experience and longevity, but they were unwilling to hire new workers lacking in basic skills. One Japanese-owned automotive supplier hired temporary workers from a pool of applicants whose basic skills were certified, and gave them further classroom and on-the-job training and trial work experience before permanent employment.

In short, employers report that a substantial share of their hourly workers—one-fourth to two-fifths-—have basic skills difficulties. The incidence of low basic skills seems to be greater in the areas of math, problem solving, and interpersonal skills than in reading and writing. The responses to these deficiencies have been to increase training, to reorganize jobs, and to increase hiring standards.

3.2 Characteristics of Firms With Workplace Education Programs

The NAM and Nation surveys provided the following text to identify whether a firm had a workplace education program or not:

> **A workplace education program provides training—separate from regular job activities—in one or more of the following:**
>
> **Reading and writing English**
> **Mathematics**
> **Speaking and understanding English**
> **Problem solving**
> **Interpersonal skills**
>
> **Such a program may take place at the work site, somewhere else, or a combination of both.**

Tables 5 and 6 provide summary data that characterize firms that indicated that they had had a workplace education program sometime in the past two years and firms without such programs. The first table groups all firms with programs and all firms without programs, whereas table 6 classifies firms by whether or not they are in the manufacturing sector. Larger firms are more likely to have workplace education programs, and the almost 60 percent difference in average total employment between firms with and without programs shown in table 5 is statistically significant. Table 6 indicates that this difference in size holds for both manufacturing firms and non-manufacturing firms; however differences are not statistically significant.

Among the case study firms, the median employment size for the firms with programs, excluding the two large businesses that were studied, is 210 employees, which is somewhat larger than the mean number of employees displayed in table 5. Unlike the survey, the case study firms without programs were larger than firms with programs (median

Table 5

Attributes of Firms With
Workplace Education Programs and Those Without[1]

Attribute	Without Program	With Program
Total number of employees	84	131**
Part-time employees (%)	18.5	9.9
Female employees (%)	36.0	37.6
Hourly employees (%)	66.8	71.5
Entry level hourly wage ($)	6.54	6.57
Average hourly wage ($)	9.18	9.62
Top hourly wage ($)	12.48	15.35
Benefits:[2]		
Health insurance	84.7	90.0
Sick leave	47.5	53.3
Paid vacations	93.2	93.3
Pension	64.4	86.7**
Training expenditures/payroll (%)	0.8	2.8**
Promotions made internally[3]	2.8	3.1
Turnover[4]	0.5	0.6
Covered by collective bargaining[5]	24.6	22.0
Profits[6]	-0.2	0.0
Sample size	62	31
Reorganization of work index[7]	2.95	4.04**
Sample size	145	47

[1] An asterisk (*) indicates statistically significant difference between firms with workplace education programs and those without at the 0.10 level of significance. Two asterisks (**) indicates a significant difference at the 0.05 level of significance.

[2] Reported as the percentage of firms that offer each benefit.

[3] Based on a 4-point scale where: 1 means "rarely"; 2 means "often"; 3 means "usually"; and 4 means "almost always."

[4] Based on a 4-point scale, where: 0 means that within the past two years, turnover was "not at all serious"; 1 means "not very serious"; 2 means "somewhat serious"; and 3 means "very serious."

[5] Indicates the percentage of firms reporting that some or all of their employees are covered by collective bargaining.

[6] Based on a 3-point scale where -1 indicates that over the past two years profits have decreased, 0 indicates profits have remained constant and 1 indicates that profits have increased.

[7] The number of the following activities done by the firm to change how employees do their work: "Implemented work teams or quality circles," "Began to implement total quality management," "Began profit/gain sharing," "Reduced management layers/oversight," "Increased responsibility for all workers (empowerment)," "Integrated quality control into production (SPC)," or "Implemented just-in-time or computer integrated manufacturing."

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Table 6

Attributes of Firms With
Workplace Education Programs and Those Without[1], by Sector

Attribute	Non-Manufacturing		Manufacturing	
	Without	With	Without	With
Total number of employees	78	163	88	125
Part-time employees (%)	33.3	25.9	7.7	6.6
Female employees (%)	51.5	63.4	24.6	32.2
Hourly employees (%)	68.6	64.9	65.5	72.9
Entry level hourly wage ($)	6.00	7.66	6.88	6.33
Average hourly wage ($)	7.61	12.34*	10.15	9.23
Top hourly wage ($)	11.08	25.93**	13.40	13.42
Benefits:[2]				
Health insurance	68.0	60.0	97.1	96.0
Sick leave	44.0	60.0	50.0	52.0
Paid vacations	88.0	80.0	97.1	96.0
Pension	56.0	100.0*	70.6	84.0
Training expenditures/payroll (%)	0.5	1.7**	1.0	3.0**
Promotions made internally[3]	2.6	3.0	2.9	3.1
Turnover[4]	0.6	0.8	0.4	0.5
Covered by collective bargaining[5]	11.5	0.0	34.3	20.0
Profits[6]	-0.1	0.5	-0.2	-0.1
Sample size	26	5	36	26
Reorganization of work index[7]	2.55	2.64	3.24	4.64**
Sample size	60	14	85	33

[1] An asterisk (*) indicates statistically significant difference between firms with workplace education programs and those without, within each industry classification at the 0.10 level of significance. Two asterisks (**) indicates a significant difference at the 0.05 level of significance.

[2] Reported as the percentage of firms that offer each benefit.

[3] Based on a 4-point scale, where: 1 means "rarely"; 2 means "often"; 3 means "usually"; and 4 means "almost always."

[4] Based on a 4-point scale, where: 0 means that within the past two years, turnover was "not at all serious"; 1 means "not very serious"; 2 means "somewhat serious"; and 3 means "very serious."

[5] Indicates the percentage of firms reporting that some or all of their employees are covered by collective bargaining.

[6] Based on a 3-point scale, where: -1 indicates that over the past two years profits have decreased, 0 indicates profits have remained constant, and 1 indicates that profits have increased.

[7] The number of the following activities done by the firm to change how employees do their work: "Implemented work teams or quality circles," "Began to implement total quality management," "Began profit/gain sharing," "Reduced management layers/oversight," "Increased responsibility for all workers (empowerment)," "Integrated quality control into production (SPC)," or "Implemented just-in-time or computer integrated manufacturing."

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employment size of 250). However, given the select nature and relatively small number of case study sites, this finding does not necessarily refute the finding that programs are much more likely to be found in larger small businesses.

Employers were asked to indicate the percentage of their employees who are part-time, who are female, and who are paid on an hourly basis. The average percentages of female workers and hourly employees were virtually identical for firms with and without programs. Firms with programs, however, had a smaller share of part-time employees, on average—about 10 percent compared to 20 percent for firms without programs. Table 6 analyzes these characteristics by sector and shows that non-manufacturing firms tend to have a larger percentages of female workers and part-time workers, but in neither sector are there differences between firms with and without a workplace education program.

Data concerning three specific hourly wage rates—entry-level, average, and top—and four types of fringe benefits were collected in the survey. The means for all of these variables were higher for firms with programs than for firms without programs, although only one of those—provision of a pension—was statistically significant. Wage rates and benefits were much higher in manufacturing firms than in non-manufacturing firms,[3] but, with few exceptions, there were only minor differences in wages or benefits between firms with or without a program. This was confirmed by the case studies, in which there did not appear to be any correlation between wages and benefits and whether the firm offered workplace education or not.

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[3]This statement does not seem to hold for non-manufacturing firms with programs. However, there are only 5 such firms and one of them reported exceptionally high wages.

On the other hand, the ratio of training expenditures to total payroll does seem to be related to presence of a workplace education program. Firms with a program spend three times as much on training (as a ratio to payroll) than do firms without training. Table 6 shows that this relationship holds up within sectors also. The reader is cautioned that the causality between presence of a program and training expenditures cannot be determined from these data. It may be the case that firms with a program tend to place greater emphasis on training and therefore offer a workplace education program. Or it may be the case that the workplace education programs cause training expenditures to increase.

Table 5 presents evidence that firms with programs are slightly more likely to promote internally and are more profitable[4]; however, these relationships are not significant. Most of the firms included in the case studies followed a policy of internal promotion, and this policy did not seem to have any relationship to the presence of a program.

As might be expected, collective bargaining was more prevalent in the manufacturing sector than in the non-manufacturing sector and turnover was slightly less of a problem in manufacturing. However, within sectors and for the total sample, there was no difference in collective bargaining coverage or turnover between firms with and without a program. Only a few of the case study firms had collective bargaining contracts, and among small business firms, the unions were largely disinterested and uninvolved in basic skills training. There was a tendency for unions to want to mask basic skills deficiencies among their members, and general worker assessment was a sensitive issue for firms that offered workplace education programs. Turnover was seldom cited as a deterrent to basic skills training by the

[4]Profitability is measured as a trend over the past two years--a -1 indicates a decrease; 0 indicates little change; and a +1 indicates an increase.

case study firms. Fear of turnover was not offered as a major reason that firms did not have workplace education.

The last attribute listed in table 5 is an index that characterizes the extent to which the respondent's firm has engaged in reorganization or restructuring activities. Considerable recent publicity has been accorded to the activities that firms have been pursuing in response to increased domestic and global competitiveness. The mail survey and telephone incidence survey asked respondents to indicate whether their firm had engaged in any of a battery of seven different activities "to change how their employees do their work." These activities are listed in footnote 7 of the table. Firms with programs have pursued these activities to a much higher extent than firms without programs—an average of over four out of the seven activities compared to an average of just under three out of seven. Table 6 shows that the reorganization activities are being undertaken in manufacturing at a much greater rate than in non-manufacturing. Again, the average number of activities in firms with programs far exceeds the average number in firms without programs in that sector.

To summarize this section, the major differences between firms with a program and without a program are in the firms' employment size, expenditures on training, and in pursuit of reorganization of work activities. Firms with a workplace education program are larger, invest more in training (as measured by the ratio of training expenditures to payroll), and have undertaken more extensive restructuring. Furthermore, firms with programs tend to have higher wages and benefits, to have had better profitability over the last two years, and to promote internally; although these are statistically weaker relationships. Firms with

and without programs do not differ in terms of turnover or the presence of collective bargaining.

3.3 Reasons for Offering or Not Offering a Workplace Education Program

A reasonable question that might be asked is whether firms with programs have greater incidence of low basic skills attainment among their workers. That is, to what extent is provision of programs related to need. Tables 7 and 8 combine the NAM and Nation surveys to provide a summary of the firms' self-assessment of the incidence of need and of the amount of improvement in basic skills needed by their hourly employees. Also, the tables provide information on the respondents' assessments of the importance of basic skills to firm performance and the actions firms have taken to address low basic skills among their workforces.

The tables indicate that firms with programs do report a greater incidence of low basic skills and much greater need for improvements. In the NAM survey, there is not a statistically different response to the percentage of hourly workers with some basic skills difficulties between firms with and without a program. However, firms with a program report a much higher share of employees with inadequate English skills. Responses to the Nation survey, on the other hand, point to a difference in the percentage of workers with difficulties in problem solving or interpersonal skills, but no difference in math or English skills. Considering all firms in the sample, employers strongly and significantly believe more improvement is needed in all of the basic skills areas, with the exception of speaking and understanding English.

Table 7

Evidence of Need for Workplace Education Program
Comparison of Firms With Programs and Those Without[1]

Attribute	Without Program	With Program
Hourly employees with:[2]		
Inadequate English skills (%)	13.9	31.0**
Inadequate basic skills (%)	34.8	40.3
Difficulties with math skills	26.3	24.3
Difficulties in reading/writing English	12.4	17.3
Difficulties in speaking/understanding English	0.9	6.8*
Difficulties with problem solving or interpersonal skills	20.8	32.5
How much improvement needed:[3]		
Reading	1.4	1.8**
Writing	1.7	2.1**
Mathematics	1.8	2.3**
Speaking and understanding English	1.0	1.1
Problem solving	2.0	2.4**
Interpersonal skills	1.9	2.3
Importance of basic skills to:[4]		
Productivity	2.8	2.9
Profits	2.5	2.9*
Domestic competitiveness	2.4	2.9**
International competitiveness	2.4	2.8**
Firm taken any action:[5]		
Changed hiring practices	45.2	60.0
Reorganized jobs	40.3	36.7
Increased training	53.2	100.0**
Relocated to lower cost area	3.2	0.0
Relocated to more skilled workers	1.6	0.0
Sample size	62	31

[1] An asterisk (*) indicates statistically significant difference between firms with workplace education programs and those without at the 0.10 level of significance. Two asterisks (**) indicates a significant difference at the 0.05 level of significance.

[2] Table entries are average percentages. The first two data items come from the NAM survey, whereas the other four items come from the Nation survey.

[3] Based on a 4-point scale: 0 means "none"; 1 means "very little"; 2 means "moderate amount"; and 3 means "very much".

[4] Based on a 4-point scale: 0 means "not at all important"; 1 means "not very important"; 2 means "somewhat important"; and 3 means "very important". Data on profits, domestic and international competitiveness are reported only on NAM survey.

[5] Firms were asked if in the past two years any of the listed actions were taken because of low basic skills among its hourly workers. Values reported are the percentage of firms answering yes to the listed categories.

Table 8

Evidence of Need for Workplace Education Program
Comparison of Firms With a Program and Those Without[1]

Attribute	Non-Manufacturing		Manufacturing	
	Without	With	Without	With
Hourly employees with:[2]				
Inadequate English skills (%)	---	---	13.9	31.0**
Inadequate basic skills (%)	---	---	34.8	40.3
Difficulties with math skills	20.6	26.7	40.0	23.4
Difficulties in reading/writing English	9.5	6.7	18.7	20.9
Difficulties in speaking/understanding English	0.8	2.0	1.2	9.9
Difficulties with problem solving or interpersonal skills	17.3	23.3	29.2	36.0
How much improvement needed:[3]				
Reading	1.0	1.0	1.7	1.9
Writing	1.2	1.8	2.1	2.1
Mathematics	1.3	1.8	2.1	2.4*
Speaking and understanding English	0.7	0.4	1.1	1.3
Problem solving	1.5	1.6	2.3	2.6*
Interpersonal skills	1.5	1.8	2.1	2.4
Importance of basic skills to:[4]				
Productivity	2.8	3.0	2.8	2.9
Profits	---	---	2.5	2.9**
Domestic competitiveness	---	---	2.4	2.9**
International competitiveness	---	---	2.4	2.8*
Firm taken any action:[5]				
Changed hiring practices	23.1	40.0	61.1	64.0
Reorganized jobs	30.8	40.0	47.2	36.0
Increased training	34.6	100.0**	66.7	100.0**
Relocated to lower cost area	3.8	0.0	2.8	0.0
Relocated to more skilled workers	3.8	0.0	0.0	0.0
Sample size	26	5	36	26

1. An asterisk (*) indicates a statistically significant difference between firms that have a workplace education program and those without, within each industry classification at the 0.10 level of significance. Two asterisks (**) indicate a statistically significant difference at the 0.05 level significance.

2. Table entries are average percentages. The first two data items come from the NAM survey, whereas the other four items come from the Nation survey.

3. Based on a 4-point scale: 0 means "none"; 1 means "very little"; 2 means "moderate amount"; and 3 means "very much".

4. Based on a 4-point scale: 0 means "not at all important"; 1 means "not very important"; 2 means "somewhat important"; and 3 means "very important". Data on profits, domestic and international competitiveness are reported only on NAM survey.

5. Firms were asked if in the past two years any of the listed actions were taken because of low basic skills among its hourly workers. Values reported are the percentage of firms answering yes to the listed categories.

In terms of the importance of hourly workers' basic skills to firm performance, employers with programs are more sanguine about their importance. The links between basic skills and productivity, profit, and competitiveness (both domestic and international) are stronger for respondents from firms with programs than for respondents from firms without programs. The differences are statistically significant, except for the link to productivity. In response to basic skill deficiencies, firms have increased training; presumably by establishing education programs. Firms with programs show no difference from firms without programs in the likelihood of altering hiring practices, reorganizing jobs, or relocating to lower cost or to higher skilled areas.

The comparison within industry (table 8) shows that many of the significant measures of needed improvement disappear; however, this reflects more a sample size problem than the absence of differences in needed improvement between firms with programs and those without.

To summarize, it appears as if firms with a program report a higher incidence of basic skills deficiencies and higher level of improvement needed than do firms without a program. Again, however, this finding must be treated with caution. First of all, the difference in incidence of basic skill difficulties between firms with and without programs is not that great. Second, the differences may reflect awareness rather than differences in fact. Respondents from firms with programs may be more aware of and on the alert for basic skills difficulties than respondents from firms without programs. Finally, the effects of the program may interact with responses to these questions. If respondents in firms with a

program feel that the program is having a significant impact on skill levels, they may indicate a lower share of their hourly workforce has difficulties with such skills.

Before considering the specific attributes of workplace education programs, it is worth examining reasons firms give for not having a workplace education program. Tables 9 and 10 present a summary of their reasons. It is difficult to interpret the responses to this question because respondents were asked whether any or all of the 10 reasons listed in the tables were factors in the decision not to have a program and many employers gave multiple responses. Over 40 percent indicated that they had never considered offering a program, but then also indicated several other reasons why they hadn't offered a program, which seems somewhat inconsistent. Nevertheless, it appears as if respondents could be classified as follows:

- Have seriously considered the issue and decided not to offer a program because:
  - -- basic skills not a problem
  - -- of a lack of resources (i.e., too expensive, not enough staff, too much release time)
  - -- of negative opinions about workplace education programs (i.e., not effective, not employer's responsibility, workers quit after training)
- Have somewhat considered the issue, but need more information about:
  - -- need among workers
  - -- how to set up a program
- Have never considered the issue

Approximately one-third of the firms without a program could be classified in the bottom two groups combined. These firms responded that they either needed more information or never considered the issue. For the other two-thirds of respondents, the

Table 9

Why Doesn't Your Firm Have a Workplace Education Program?

Reason	Percent Yes
Never considered doing so	44.6
Workplace education not effective	10.8
Not employer's responsibility	33.8
Basic skills not serious problem	58.5
Need more information about need	32.3
Need more information how to set up	33.8
Too expensive	35.4
Not enough staff to manage	52.3
Too much worker release time	41.5
Workers quit after training	16.9
Sample size	65
Would you like a program?[1] (% yes)	22.5
Sample size	178

[1] This question includes responses from the NAM, Nation and phone incidence surveys. Prior questions use NAM and NATION only.

Table 10

Why Doesn't Your Firm Have a Workplace Education Program, by Sector?[1]

Reason	Percent Yes	
	Non-Manufacturing	Manufacturing
Never considered doing so	46.2	43.6
Workplace education not effective	11.5	10.3
Not employer's responsibility	42.3	28.2
Basic skills not serious problem	69.2	51.3
Need more information about need	26.9	35.9
Need more information how to set up	30.8	35.9
Too expensive	30.8	38.5
Not enough staff to manage	38.5	61.5*
Too much worker release time	38.5	43.6
Workers quit after training	19.2	15.4
Sample size	26	39
Would you like a program?[2] (% yes)	17.3	26.2
Sample size	75	103

[1] An asterisk (*) indicates a statistically significant difference between manufacturing and non-manufacturing firms at the 0.10 level of significance.

[2] This question includes responses from NAM, Nation, and the phone incidence surveys. Prior questions use NAM and NATION only.

largest number of firms were those who indicated that basic skills were not a problem among their hourly employees. More than half of the firms who did not have education programs did not perceive basic skills to be a serious problem in their firm (some of these also indicated that they had never considered the issue or needed more information). Table 10 shows this to be more prevalent among non-manufacturing firms. The smallest group would be those employers who had considered the issue, but had negative opinions. Finally, a significant share of firms cited resource concerns. The second table indicates that manufacturers were more likely to mention these concerns.

Interestingly, about one-quarter of the firms without programs indicated that they would like to implement a workplace education program. Again the reader should be cautioned about potential response bias because firms that are most interested in and knowledgeable about workplace education programs would be most likely to respond to the survey. Nevertheless, it is striking that a significant percentage of firms without programs indicated interest in implementation.

3.4 Attributes of Workplace Education Programs

Of the 251 observations in the combined NAM, Nation, and telephone surveys, 53 (22 percent)[5] had a workplace education program and tables 11 and 12 present a summary of the characteristics of those programs. The preponderance of these programs (almost 80 percent) provided release time for employees to attend and a like percentage were offered at the worksite. A little over half of the programs were voluntary. A plurality of the programs

[5] Note that the percentage of surveys returned by mail (prior to the telephone survey) that indicated the existence of a program was 31.8 percent. The reduction of almost 10 percentage points for the overall sample confirms the suspicion that firms with programs were the ones to most readily respond.

Table 11

Attributes of Workplace Education Programs

Attribute	Number of Firms	Percent[1]
Have workplace program	53	22.0
Voluntary participation	29	56.9
Taught at worksite	42	82.4
Class frequency[2]	1.8	
Release time provided	42	80.8
Financial support provided	49	92.5
Skills taught:		
Mathematics	30	58.8
ESL	2	3.9
Reading and writing	19	38.0
Standard GED curriculum	10	19.6
Problem solving	42	82.4
Interpersonal skills	34	66.7
Type of instructor:		
In house paid teacher	15	44.1
Contracted teacher	7	20.6
Company volunteer	4	11.8
Community college teacher	1	2.9
Adult education teacher	3	8.8
Private consultant	1	2.9
Technical school instructor	1	2.9
Other	2	5.9

[1] Percentages are based on respondents to the item and not on total with a program.

[2] Based on a 5-point scale: 0 means "not regularly scheduled"; 1 means "less than once a week"; 2 means "once a week"; 3 means "2 times a week"; 4 means "3-4 times a week". Firms that did not know the class frequency were excluded from the mean score.

Table 12

Attributes of Workplace Education Programs, by Sector[1]

	Non-Manufacturing	Percent[2]	Manufacturing	Percent[2]
Have workplace program	15	15.3	38	26.6
Voluntary participation	9	60.0	20	55.6
Taught at worksite	12	80.0	30	83.3
Class frequency[3]	1.7		1.9	
Release time provided	13	86.7	29	78.4
Financial support provided	12	80.0	37	97.4**
Skills taught:				
Mathematics	3	21.4	27	73.0**
ESL	1	6.7	1	2.8
Reading and writing	5	35.7	14	38.9
Standard GED curriculum	0	0.0	10	27.0**
Problem solving	13	92.9	29	78.4
Interpersonal skills	11	73.3	23	63.9
Type of instructor:				
In house paid teacher	7	77.8	8	32.0
Contracted teacher	1	11.1	6	24.0
Company volunteer	0	0.0	4	16.0
Comm. college teacher	0	0.0	1	4.0
Adult education teacher	0	0.0	3	12.0
Private consultant	0	0.0	1	4.0
Technical school instructor	0	0.0	1	4.0
Other	1	11.1	1	4.0

[1] Two asterisks (**) indicate a statistically significant difference in the workplace education characteristic between manufacturing and non-manufacturing, at the 0.05 level of significance.

[2] Percentages are based on respondents to the item and not on total with a program.

[3] Based on a 5-point scale: 0 means "not regularly scheduled"; 1 means "less than once a week"; 2 means "once a week"; 3 means "2 times a week"; 4 means "3-4 times a week".

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were not regularly scheduled (met as needed or as could be arranged), but among those programs that were scheduled on a regular basis, the median frequency was twice per week.

The responses were almost perfectly split between using an in-house employee as the instructor (in almost all cases, on a paid basis) and having an external party as the instructor.[6] In the latter case, instructors were either independent consultants or instructors from a community college or adult education department of a school system. Most of the case study firms made use of external instructors. Only 3 of the 16 firms that had a program were using employees of the firm as instructors.

The skills that were taught matched the areas of greatest need, according to the survey data. Problem solving was taught in almost 85 percent of the programs; interpersonal skills in about 70 percent of the programs; mathematics in over half of the programs; and reading, writing, or other English skills in a minority of the programs. In contrast to the survey responses, over three-quarters of the case study firms included math in their program and over three-quarters included reading and writing. Only a few programs that were observed included interpersonal skills or problem solving.

Examining the program attributes within industry shows few significant differences between manufacturing and non-manufacturing firms. Manufacturing firms were more likely

[6]Adult education professionals might wince at the prospect of calling an in-house employee an instructor, and it may be debatable as to whether such a program should really be classified as workplace education. In the case studies, there were several instances where we observed an in-house staff person in the role of instructor. We must report that in all such cases, these individuals had participated in additional training in the subject matter prior to teaching other employees and always exhibited pedagogical concerns such as organization and clarity of presentation, student evaluation, and providing additional assistance, if needed. Thus, we have little difficulty in characterizing these situations as workplace education.

to provide financial support for their programs and to sponsor GED courses. However, again the lack of significance likely results from small sample sizes.

3.5 Impact of Workplace Education

A total of 34 firms in the NAM and Nation surveys indicated that they had had a workplace education program sometime over the past two years. Of these, 14 completed a phone follow-up survey that investigated in greater detail the characteristics of their programs and, in particular, the impact that their programs were (are) having. Table 13 presents a summary of the responses from this detailed follow-up survey, but given the small number of observations, the following should be regarded as little more than descriptive, anecdotal evidence.

All 14 responses were from the manufacturing sector and 11 of the programs were still in operation at the time of the survey. Concern for employee well-being was the top reason firms gave for starting the program. However external demands were also a significant reason; 10 firms (71.4 percent) cited customer requirements or improvements in customer relations as key reasons. Furthermore, 9 firms (69.2 percent) cited competitive pressure as a reason for implementing an education program. Need to retain workers and an observed decrease in workforce skills were the next most cited reasons. Among the case study firms, there were a few firms that were motivated, at least to some extent, by concern for the employees' well-being. But in the majority of cases, especially among manufacturers, the firms cited improvement of productivity (profit) and quality of output as the primary reasons for workplace education programs.

Table 13

Summary of Phone Follow-Up Survey

	Firms (Yes)	Firms (No)	Percent (Yes)
Sample size	14		
Manufacturing Firms	14	1	100.0
Is program still operating?	11	3	78.6
Why did you start program?			
To retain workers	8	5	61.5
Decrease in workforce skills	9	5	64.3
Problem with absenteeism	2	12	14.3
Labor agreement	0	14	0.0
Preparation for other training (GED)	8	6	57.1
Preparation for job training (SPC, TQM)	8	6	57.1
Employee well-being	12	2	85.7
Increase in competition	9	4	69.2
Error rate too high	8	6	57.1
Safety/health requirements	2	12	14.3
To meet customer requirements	10	4	71.4
To improve customer relations	10	4	71.4
To prevent loss of contracts	6	8	42.9
Subsidy became available	4	10	28.6
Other reasons	5	9	35.7
Did you receive support for program?[1]	8	4	88.7
Plan to start program before support	4	3	57.1
Received support before/beginning of program	4	3	57.1
Support led to sooner implementation	5	2	71.4
Support helped to better program	4	3	57.1
Do you still receive the support?	1	6	14.3
Employee role in program initiation/design none / small role / % none	8	6	57.1
Program available to all hourly employees	10	4	71.4
Percent of workforce participating (n = 13)	59.5		
Classes held partially/completely during work hours	11	3	78.6
Hours of release time provided per week (n = 7)	8.9		
Hours of employee OWN time per week (n = 6)	3.7		
Was any of OWN time reimbursed by the firm	3	5	37.5

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Table 13
(Continued)

	Firms (Yes)	Firms (No)	Percent (Yes)
Teaching methods used:			
Individual tutoring	0	0	0.0
Group instruction	8		57.1
Individual and group instruction	6		42.9
Materials used in program:			
Computer assisted instruction	6	8	42.9
Commercially published workbooks and lessons	9	5	64.3
Special materials developed by firm	8	6	57.1
GED/ABE curriculum and materials	3	10	23.1
Was ESL taught?	0	14	0.0
What type of skills were taught?			
Only skills specific to work	1		7.1
Only general education skills	5		35.7
Both general and work-specific	8		57.1
How long could employees participate?			
As long as they want	6		46.2
Until pre-determined skill proficiency	0		0.0
Limited duration program (average = 8 weeks)	7		53.8
Percent participating 10 weeks or more (n = 7)			77.1
Not applicable, program less than 10 weeks	7		50.0
Firm promised incentive for program completion	0	14	0.0
Firm established learning goals	4	10	28.6
Firm established work performance goals	3	11	21.4
Results evaluated in any of the following:			
Tests of learning gains	9	4	69.2
Instructor reports of learning gains	7	7	50.0
Workplace performance evaluation	6	8	42.9
Cost benefit analysis	2	12	14.3
Informal observations	11	3	78.6
Cost of last year of program (n = 12)	$14,525		
Do you think benefits paid for costs?	12	1	92.3

[1] Kinds of support included: grants, free use of equipment, free services of a tacher, free instructional materials, free testing of workers, tax credit for training, program design help, and other.

Eight firms (slightly more than half) received some kind of support for the program, either from the State or from a local educational institution, to help underwrite the cost. The types of support included grants, free instruction, and/or free use of instructional materials or equipment. Four of the eight firms indicated that they had planned to start the program before receiving any support. The benefits derived from the external support were that the program was implemented sooner than it otherwise would have been (5 out of seven responses) or that a better program was created (4 out of 7). The case study evidence showed a much stronger reliance on financial assistance. Most of the case study firms received some form of financial aid. Only two of the 16 firms with programs received no aid at all. In most of the other 14 cases, the programs would never have gotten started if aid were not available. Our judgement is that a few firms with programs would continue them without subsidies or aid, but that the majority probably would not.

In a majority of firms (8), employees played no role in program initiation or design and in all of the other firms, employees had just a small role. Low employee involvement was also found to be true of the case studies, at least in the implementation and planning of the program. However, in most of the classes, participants had a great deal of influence on course content because the instructors tended to customize each class to the needs of the participants.

Table 13 shows that 10 programs were available to all hourly employees (the rest just to selected employees) and, on average, nearly 60 percent of the firms' hourly workforces had participated or were participating. Case study findings about eligibility and participation were mixed. In some cases, the programs were for hourly workers only, and in other

cases, all employees were eligible. Some firms selected who could participate; others intended to train 100% of the workforce. Also, some of the firms' programs were mandatory, and some were entirely voluntary. Of those programs that were voluntary, participation tended to be a low percentage of the workforce, but by a highly motivated and enthusiastic few.

Over 75 percent of the programs were held partially or completely during working hours, and firms provided an average of 8.9 hours per week of release time; employees contributed another 3.7 hours of their own time, with three firms indicating that such time was reimbursed by the company.

Project staff paid considerable attention to the issues concerning release time in the case studies. The evidence found that some firms offered release time to all participants; others to none. Employers and workplace education providers generally agreed that release time was important for ensuring success of a program. A notable exception was a very large firm's program that seemed to achieve a high level of success with no release time given. In some cases where the firm's policy was to give release time, the policy was not supported at the line supervisor's level where production goals had to be met, and conflicts arose between supervisors and workers who wanted to leave to attend class. In other cases, particularly when management was thoroughly committed to the program, supervisors indicated that they could easily "plan around" the needed release time. The practice of giving participants 50% "company time" in exchange for 50% of their "own time" in class seemed to work well, although one firm's participants reported high absenteeism during the hour of class that was "own time."

Group instruction was the norm (57.1 percent), with the other 6 out of 14 respondents indicating that the program involved a combination of individual and group instruction. Computer assisted instruction occurred in 6 out of 14 programs. Instructional materials included commercially published workbooks in 9 out of 14 cases and special materials developed by the firm in 8 out of 14 cases. No firm indicated that ESL was taught and only one firm indicated that only work-specific skills were taught. Most classes taught both general education and work-specific skills. Among the case study firms, 3 of the 16 programs included some ESL training. The relatively low incidence of ESL programs among firms that were observed occurred because the case study firms tended to be located in areas with very few non-native English language workers. Most of the case study programs covered both general and job-specific skills, and instructors usually attempted to use materials from the workplace as pedagogical examples.

No respondent to the survey reported that they promised employees an incentive for completing their program and few established learning or work performance goals.[7] Individual learning gains or other program results were reported to be evaluated through a variety of mechanisms. Eleven out of 14 firms used informal observations to evaluate results. In addition, around half of the firms used formal tests of learning gains, used instructor reports of learning gains, or used workplace performance evaluations.

A very important characteristic of programs is the financial cost borne by the employers. As a general rule, the costs that firms bear are quite modest. In the survey data, the mean out-of-pocket expense over the last year for programs was $14,525; with a range

[7]In one case study firm, completion of the workplace education program was required to become eligible for profit-sharing bonuses, but it didn't guarantee the bonus.

from $0 to $50,000. These costs included payments to instructors, release time paid to employees, and costs of materials and facilities. These costs may underestimate the total cost since most firms operate their programs in partnership with an educational institution, and usually that institution bears fixed costs such as curriculum development. Furthermore, the federal government will subsidize, from Adult Education funds, the basic skills instructional costs of an individual 16 and over who has not completed high school or it equivalent. On the other hand, the reported costs may be an overestimate of costs to operate a program because they may include one-time remodeling and refurbishing costs associated with providing space for workplace education activities. Although only two firms indicated undertaking a cost-benefit analysis to evaluate results of the program, nearly all firms believed the benefits paid for the costs of the program.

None of the case study firms had conducted any sort of cost-benefit analysis or even rudimentary rate of return analysis. In most cases, they simply do not know how to go about measuring the benefits, although in some cases they do have productivity measurement systems that could potentially be tapped for workplace education effects. Usually, firms with workplace education programs are concurrently implementing other parallel efforts to improve productivity, and it is impossible to isolate the benefit of workplace education alone. Nearly all the case study firms believed the benefits paid for the cost of the program, as did the survey respondents, but in many cases, firms were doubtful or uncertain if they would be able to continue the program without a subsidy.

Table 14 presents evaluative data on the improvement in worker skills and attitudes as a result of the workplace education programs. Here outcomes are categorized into worker

Table 14

Evaluations of Improvement in Worker Skills
from Workplace Education Programs from Follow-up Survey Responses

	None (0)	Very little (1)	Moderate amount (2)	Very much (3)	Mean score
Basic Skills					
Reading	0	4	3	1	1.6
Percent		50.0	37.5	12.5	
Writing	0	4	2	2	1.8
Percent		50.0	25.0	25.0	
Mathematics	0	2	5	4	2.2
Percent		18.2	45.5	36.4	
English	1	1	1	0	1.0
Percent	33.3	33.3	33.3	0.0	
Problem solving	1	4	3	4	1.8
Percent	8.3	33.3	25.0	33.4	
Communication	0	2	5	5	2.3
Percent		16.7	41.7	41.7	
Employee Attitudes and Job Skills					
Work effort	2	8	1	0	1.7
Percent	18.2	72.7	9.1		
Company loyalty	0	4	6	3	1.9
Percent		30.8	46.2	23.1	
Employee morale	0	2	8	3	2.1
Percent		15.4	61.5	23.1	
Independent work ability	1	3	7	2	1.8
Percent	7.7	23.1	53.8	15.4	
Team work	1	2	6	4	2.0
Percent	7.7	15.4	46.2	30.8	
Ability to use technology	3	3	6	1	1.4
Percent	23.1	23.1	46.2	7.7	
Self confidence	0	2	5	6	2.3
Percent		15.4	38.5	46.2	

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Table 14
(Continued)

	None (0)	Very little (1)	Moderate amount (2)	Very much (3)	Mean score
Company Outcomes					
Retention of employees	6	1	4	1	1.0
Percent	50.0	8.3	33.3	8.3	
Absenteeism/lateness	5	4	2	2	1.1
Percent	38.5	30.8	15.4	15.4	
Advancement (promotions)	3	4	4	2	1.4
Percent	23.1	30.8	30.8	15.5	
Worker safety	3	4	2	2	1.3
Percent	27.3	36.4	18.2	18.2	
Output quality	1	3	8	1	1.7
Percent	7.7	23.1	61.5	7.7	
Customer satisfaction	4	2	4	3	1.5
Percent	30.8	15.4	30.8	23.1	
Scrap/error rates	4	3	1	3	1.3
Percent	36.4	27.3	9.1	27.3	
Productivity	4	3	6	0	1.2
Percent	30.8	23.1	46.2		

basic skills, worker attitudes, and company outcomes. The first six rows in the table are basic skills categories, and among these, workers show the greatest gains in communication and mathematics. Writing and problem solving skills have more modest gains. In terms of worker attitudes and job skills (the next seven categories), the areas of self-confidence, morale, and team work improved most. Company loyalty, work effort, independent work ability, and ability to use technology showed somewhat smaller gains. Finally, among company outcomes, output quality exhibited a modest gain and all other outcomes showed very little impact.

3.6 Policy Influences on Workplace Education Programs

In both the NAM and Nation surveys, respondents were asked how much influence certain public policies in the form of financial or information assistance would exert on the firms' willingness to start, continue, or enhance workplace education programs. Tables 15 and 16 present a summary of the influence of each item. Based on a 4-point scale ranging from "no influence" to "major influence", firms showed that among the financial incentives, they would be relatively more influenced by reductions in UI taxes or the availability of free programs or programs attended at least partially on an employee's own time. State and local government grants or federal tax credits were relatively less influential. Within industrial sectors (table 16), manufacturing firms were relatively more influenced by reductions in UI tax liabilities and by a federal tax credit than were non-manufacturing firms. The firms that were visited in the case studies, as a group, indicated that they would be only slightly influenced by a UI tax reduction, but they were highly receptive to government grants and federal tax credits.

Table 15

Sources of Support and Influence on Workplace Education

	Major Influence (3)	Moderate Influence (2)	A Little Influence (1)	No Influence (0)	Mean Score
Financial assistance:[1]					
Federal tax credit	25	27	23	23	1.6
Percent	25.5	27.6	23.5	23.5	
State/Local grants	25	31	24	17	1.7
Percent	17.5	32.0	24.7	17.5	
Reduced UI tax	33	35	18	12	1.9
Percent	33.7	35.7	18.4	12.2	
Program at no charge	34	31	16	16	1.9
Percent	35.1	32.0	16.5	16.5	
Employees use OWN time	32	34	15	16	1.8
Percent	33.0	35.1	15.5	16.5	
Information/other assistance:[2]					
Evidence of effectiveness	30	27	18	19	1.7
Percent	31.9	28.7	19.1	20.2	
Business networks	9	22	39	25	1.2
Percent	9.5	23.2	41.1	26.3	
Education consortium	5	28	33	28	1.1
Percent	5.3	29.8	35.1	29.8	
Program design assistance	16	26	22	30	1.3
Percent	17.0	27.7	23.4	31.9	
Assistance with finding funds	21	27	20	26	1.5
Percent	22.3	28.7	21.3	27.7	
Assistance with evaluation	20	23	27	24	1.4
Percent	21.3	24.5	28.7	25.5	
	Yes	No			
Payroll tax[3]	29	70			
Percent	29.3	70.7			

[1] Firms were asked: "If you could receive the following types of financial assistance or employee contributions, how would they influence your willingness to start, continue, or enhance workplace education in your firm?"

[2] Firms were asked: "If you could receive the following types of information or assistance, how would they influence your willingness to start, continue, or enhance workplace education in your firm?"

[3] Firms were asked: "Would you favor or oppose a government program that does all of the following: a) levies a 1% tax on payroll, b) rebates the tax to employers who spend 1% of their payroll on training, and c) spends the collected funds on publicly supported training programs for workers?"

Table 16

Sources of Support and Influence on Workplace Education[1]

	Non-Manufacturing mean score[2]	Manufacturing mean score[2]
Financial assistance:[3]		
Federal tax credit	1.3	1.8**
State/Local grants	1.5	1.8
Reduced UI tax	1.7	2.1**
Program at no charge	1.9	1.9
Employees use OWN time	1.8	1.9
Information/other assistance:[4]		
Evidence of effectiveness	1.8	1.8
Business networks	1.0	1.3
Education consortium	1.0	1.3
Program design assistance	1.1	1.5*
Assistance with finding funds	1.3	1.7
Assistance with evaluation	1.2	1.6
Payroll tax[5] (% yes)	26.3	30.9

[1] An asterisk (*) indicates a statistically significant difference between non-manufacturing and manufacturing firms at the 0.10 level of significance. Two asterisks (**) indicates a significant difference at the 0.05 level of significance.

[2] Mean score based on a 4-point scale where: 0 means "no influence"; 1 means "a little influence"; 2 means "moderate influence"; and 3 means "major influence".

[3] Firms were asked: "If you could receive the following types of financial assistance or employee contributions, how would they influence your willingness to start, continue, or enhance workplace education in your firm?"

[4] Firms were asked: "If you could receive the following types of information or assistance, how would they influence your willingness to start, continue, or enhance workplace education in your firm?"

[5] Firms were asked: "Would you favor or oppose a government program that does all of the following: a) levies a 1% tax on payroll, b) rebates the tax to employers who spend 1% of their payroll on training, and c) spends the collected funds on publicly supported training programs for workers?"

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In the survey, public support of the dissemination of evidence on the effectiveness of workplace education programs would be more influential than other kinds of public information or assistance. The case study firms would also be influenced by this type of evidence, but also were receptive to business networks and educational consortia.

Finally, the surveys asked firms whether they would favor a very specific government program for workplace education. Less than one-third of the firms responded favorably to a program that would: 1) levy a 1 percent tax on payrolls; 2) rebate the tax to employers who spend 1 percent of their payroll on training; and 3) spend any remaining funds on publicly supported training programs for workers. The small difference between manufacturers and non-manufacturers was not statistically significant.

4. Summary

Workplace education programs have been established in a small share of Michigan small business firms. The employers that have offered these programs are responding to both internal and external factors. A substantial share of hourly workers, perhaps 25-40 percent, have some basic skills deficiencies and firms link basic skills improvement to productivity enhancement. It is also the case that customer requirements and workplace restructuring have played a significant role in initiating programs.

Considerable variety exists among the programs that are offered. Some programs are formally scheduled; others meet occasionally. The skills that are taught run the gamut from standard GED preparation curriculum to pre-technical training mathematics to interpersonal skills training. Instructors may be among the firm's employees or they may be professionals

from a local educational institution. This variety is to be expected since the employers with programs are, for the most part, taking ownership of the programs and expect them to impact the employers' specific workforces and production processes.

Less variance exists in the employers' self-evaluations of program impacts. For the most part, programs are seen as modestly improving workers' basic skills levels, having more significant impacts on self-confidence and employee morale, and having, at best, small positive effects on company performance. These modest impacts are also to be expected; the average annual investment for programs made by employers is around $14,000. A more important question than the level of program impacts on individual employees is the return on the investment. Firms with programs clearly feel that the benefits exceed the cost, although few have attempted to formally calculate this impact. Many firms without programs must share this perception, because almost one-fourth indicated that they would like to initiate a program.

The following summarizes significant findings from the study. Note that all of these findings are based on the responses and opinions of employers as expressed in a survey or to on-site case study observers, and do not result from formal assessments.

Need

- at least 25 - 40 percent of hourly employees have some basic skills difficulties
- levels of deficiencies are greater for problem solving skills, interpersonal skills, and mathematics than for reading and writing
- needs are greater in manufacturing than non-manufacturing firms
- a significant share of employers are responding to basic skills deficiencies by increasing hiring standards or by reorganizing work

Incidence

- perhaps less than 5 percent of small business firms have a workplace education program, although this estimate is uncertain because of response selectivity and lack of a clear cut definition of what comprises a program

Characteristics of firms with and without programs

- firms with programs have more employees, on average, than firms without programs
- firms with programs spend more on training
- firms with programs pay higher wages
- firms with programs have undertaken more reorganization of work activities
- no differences exist between firms with programs and those without programs in the following areas:

  --profits
  --turnover
  --collective bargaining coverage

Why firms do or do not offer workplace education programs

- firms with programs have workforces that exhibit need; higher percentage of workers have difficulties with problem solving skills, interpersonal skills, and English language skills in these firms than in firms without programs
- the major reasons that firms with programs offer such programs are as follows (roughly in descending order):

  --receipt of a subsidy
  --employee well-being
  --to meet customer requirements/improve customer relations
  --overcome basic skills deficiencies
  --increased competition
  --prepare for other, more technical training

- the major reasons that firms without programs have not offered such programs are as follows (roughly in descending order):

  --basic skills are not a serious problem

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--need more information about employee need or program implementation
--requires too many resources (time, staff, or financial)
--never considered doing so
--negative toward workplace education programs

- over 20 percent of firms without programs would like to initiate a program

Attributes of workplace education programs

- virtually all programs have received financial support from the company; most firms have received financial or material support from an external agency

- most firms provide release time (the very small sample of firms that provided precise data, averaged 8.9 hours of release time per worker per week)

- over half the programs are voluntary; the others are at least partially mandatory

- the following skills are taught (roughly in descending order)[8]:

  --problem solving
  --interpersonal skills
  --math
  --reading and writing
  --standard GED curriculum
  --ESL

- about half the programs have company employees as instructors; about half have paid instructors from a local educational institution[9]

- among the small sample of firms providing cost data, the average annual out-of-pocket cost was $14,525 and 60 percent of hourly employees participated in the program

Program impacts

- among worker skills, improvement was greatest in communication and mathematics

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[8]Case study programs had a much higher incidence of math and reading/writing and much lower incidence of problem solving and interpersonal skill training than did the survey respondents.

[9] Case study programs had fewer instances of in-house instructors.

- among worker attitudes and job skills, improvement was greatest in self-confidence, employee morale, and team work
- among company outcomes, improvement was greatest in output quality

APPENDIX A

Case Study Summaries

This appendix provides short standardized summaries of the 28 case studies that were conducted. For companies with a program, the summaries provide information about the firm, the historical development of the program, details about the program, and evidence of program impact. For companies that did not have a program, the summaries provide information about the firm and what the companies told us about why they did not offer workplace education.

FIRMS PARTICIPATING IN CASE STUDY PRE-TESTS

INDUSTRY (SIC): Paperboard Containers and Boxes (265) PROGRAM: Yes

LOCATION: Kalamazoo MSA

EMPLOYMENT SIZE: 173 (at 3 locations)

DATE(S) OF SITE VISIT: March 14 and 15, 1991

HISTORY OF PROGRAM: The underlying problems that the training was meant to address were poor worker performance in SPC training and a high rate of turnover, particularly among disadvantaged workers. As a federal government contractor, the firm was obligated to meet particular EEO standards, but it had found that many minority entry-level applicants and new hires in unskilled jobs had basic skills deficiencies. The firm contracted with the local adult education department of the public schools to offer on-site training in reading, writing, and mathematics. The firm pays for release time and incidental costs. Most of the instructional costs are subsidized by Adult Education funding.

CHANGE EVENTS/RESTRUCTURING: The firm has experienced steady growth and has invested in new technology and offered SPC training.

PROCESS FOR ASSESSMENT OF WORKERS: The provider assessed all production workers at one company site using the Adult Placement Indicator (API) Form A and Inventory of Essential Skills. All individuals with less than an eighth-grade level in math or English were required to participate in the program.

GENERAL DESCRIPTION OF THE PROGRAM: The firm provided space for the instructor to establish a classroom. A variety of classes are offered three to four afternoons per week in mathematics, reading, and writing skills. The curriculum is customized from standard ABE course materials offered by the public schools. Several workers were preparing for GED.

PROVIDER TYPE: Adult education department of public school system.

SUBJECT(S): Math, reading, writing

INSTRUCTION TYPE: Depends on class; one math class was self-directed, but most classes are in an informal group discussion format.

NUMBER OF PARTICIPANTS: 35 - 40 workers had started. At the time of the site visit, a total of 27 individuals were participating.

RELEASE TIME: Fully reimbursed by the company; often paid at time and a half for overtime. Company reported a cost of $40,000 in first year of program.

EVIDENCE OF IMPACT: Management felt that the program had been responsible for reduced error rates. Workers and instructor indicated great improvements in self-confidence and self-esteem. Several students were interested in enrolling in postsecondary programs.

CASE STUDY SUMMARY: This is a substantial program with a large share of the workers participating and substantial investment by the company. The on-site classes, instructional quality, and participation were impressive. The only criticisms that might be leveled at the program are rather poor communication among the key actors and no planned link from basic skills training to SPC training. But all in all, program stood out as one of the most comprehensive.

INDUSTRY (SIC): Plastics Products (3089) PROGRAM: No

LOCATION: Kalamazoo MSA

EMPLOYMENT SIZE: 167

DATE(S) OF SITE VISIT: March 19, 1991

WHY NO PROGRAM: The main reason why there is no program is that the management does not perceive that there is a need for one and because very recently-installed, advanced, automated equipment has de-skilled the work.

CHANGE EVENTS/RESTRUCTURING: A young, growing company whose approach is to utilize the most advanced technology in order to achieve productivity.

CASE STUDY SUMMARY: This is a successful company that was recently formed as a spin-off from another company. The management acknowledges that the workforce has basic skills difficulties, but feels that advanced technology can "work around" such difficulties. Labor supply is abundant in this area, so workforce can be screened to some extent.

FIRMS PARTICIPATING IN PHASE I CASE STUDIES

INDUSTRY (SIC): Public Building and Related Furniture (253) PROGRAM: Yes

LOCATION: Grand Rapids MSA

EMPLOYMENT SIZE: 437

DATE(S) OF SITE VISIT: May 20, 1991

HISTORY OF PROGRAM: Company president inspired by workplace literacy presentation given at a meeting of community business leaders. Three management staff were trained as literacy tutors and the workforce was assessed and offered tutoring on a volunteer basis. The program had been in existence for two years.

CHANGE EVENTS/RESTRUCTURING: The company is growing, having doubled in size since 1985, due to increased demand for their products. Very few changes in technology or production processes, however.

PROCESS FOR ASSESSMENT OF WORKERS: The WRAT was offered to 270 production workers as an assessment tool, and 220 actually took the test. Those who scored low were encouraged to volunteer for literacy tutoring.

GENERAL DESCRIPTION OF PROGRAM: Participants receive one-on-one literacy tutoring from other employees of the firm. The training is not job-related. Materials used are whatever the individuals are interested in and usually relate to hobbies or outside interests.

PROVIDER TYPE: The tutors are employees of the firm. Three management employees were trained in literacy tutoring by the community's literacy council, and these employees in turn have trained other employees.

SUBJECT(S): Literacy: reading and writing

INSTRUCTION TYPE: One-on-one tutoring

NUMBER OF PARTICIPANTS: Ten to twelve people volunteered for tutoring, but of those, 3-4 quit the tutoring. The remainder are still being tutored.

RELEASE TIME: The firm offers one hour per week release time; however, most of the participants wanted to keep their participation confidential, and so they use lunch or afterwork hours for tutoring.

EVIDENCE OF IMPACT: The company feels that trainees have not shown much improvement in abilities, but have demonstrated improved attitudes toward work and toward their own skill deficiencies. They are much more open about it and are not "scared to admit" their problems. In contrast, participants were enthusiastic about their improved abilities and cited specific examples of how they can now use reading and writing to be more effective on the job. One worker is now able to write notes to second shift workers, another is now better organized about his work, and another has started leaving messages for his supervisor, when that person is not available. Finally, a worker indicated that he could now more accurately order parts.

CASE STUDY SUMMARY: The firm offers literacy tutoring, including release time to workers who volunteer to participate. The company's motivation is not production-related, but simply to help the employees. The CEO said, "It is people here helping other people here." Interestingly, participating workers cited ways that their improved reading and writing skills enhanced job performance, even though this did not seem to be a management objective.

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INDUSTRY (SIC): Public Building and Related Furniture (254) PROGRAM: Yes

LOCATION: Grand Rapids MSA

EMPLOYMENT SIZE: 200 at site visited; 50 and 150 at two other locations.

DATE(S) OF SITE VISIT: May 21, 1991 and November 19, 1991

HISTORY OF PROGRAM: Program launched between first and second visits by a state grant of $80K. Motivation was to systematically train the workforce because of stiffer competition. An analysis of the various work tasks had revealed that some senior workers and high school graduates had serious deficiencies in basic math and literacy. Recent financial pressures have forced discontinuance of the program, at least temporarily.

CHANGE EVENTS/RESTRUCTURING: Transition from "job-shop" to full production operation.

PROCESS FOR ASSESSMENT OF WORKERS: Workers who signed up for the program were assessed in mathematics.

GENERAL DESCRIPTION OF PROGRAM: Instruction is offered in basic math with emphasis on measurement, a skill needed on the job. Another class in business writing is offered. Two self- improvement seminars, "Working Parents" and "Managing Your Money" are also offered for a $10 fee and on workers own time.

PROVIDER TYPE: Local public school community education division.

SUBJECT(S): Basic math, business writing, and for a fee, "Working Parents" and "Managing Your Money"

INSTRUCTION TYPE: Classroom, group oriented, highly interactive.

NUMBER OF PARTICIPANTS: Twenty-six in initial seminar and 46 divided into 8 groups in first cycle.

RELEASE TIME: Full release time is given, and classes are scheduled to fit needs of all workshifts.

EVIDENCE OF IMPACT: Math participants felt they learned a lot and appreciated the opportunity, but did not think much of the material was applicable to their jobs. Business writing participants found the instruction useful at the workplace as well in their private lives. Half of the business writing participants were office workers. Supervisors were reportedly unenthusiastic about workers leaving their work station to attend class. The firm noticed an improvement in morale and better relations between workers and management. There are signs that some new skills are being used on the job, but gains are expected to be gradual.

CASE STUDY SUMMARY: The program was started with a state subsidy, and was well organized and enthusiastically received by the workers; much more so than most other case study firms. But business pressures forced its demise, and resumption is uncertain. All publicity and communication about the program assiduously avoided "school jargon"; classes were seminars; students were participants; courses were series. This was a key factor according to training director.

INDUSTRY (SIC): Public Building and Related Furniture (253) PROGRAM: Yes

LOCATION: Kalamazoo MSA

EMPLOYMENT SIZE: 247

DATE(S) OF SITE VISIT: October 1, 1991

HISTORY OF PROGRAM: Began as a result of quality meetings addressing the problem of parts not being made to blueprint specifications and resulting in costly scrap and rework. Had been progressing for one year prior to site visit. The program was completely funded by the company.

CHANGE EVENTS/RESTRUCTURING: Recent change in company ownership.

PROCESS FOR ASSESSMENT OF WORKERS: Workers pre-tested in mathematics. Pre-test revealed literacy deficiencies as well (25%)

GENERAL DESCRIPTION OF PROGRAM: The course was created by condensing the key elements of a 16 week blueprint reading course into 16 hours. Customized by close coordination between the firm and the provider. The firm's blueprints and parts are used as examples in class.

PROVIDER TYPE: Community College

SUBJECT(S): Industrial blueprint reading and basic shop math.

INSTRUCTION TYPE: Classroom style, group oriented, and highly interactive.

NUMBER OF PARTICIPANTS: Each class limited to 11 workers. At time of site visit, 3 classes had been completed.

RELEASE TIME: Provided as an extended work day. Participants are paid straight time for time spent in class.

EVIDENCE OF IMPACT: Instructor felt all participants benefit to some degree. Some were motivated to seek more training on their own, and attitude and work performance showed improvement. Company observed significant improvement in company loyalty and morale, in error rate reduction, and ability to use new technologies.

CASE STUDY SUMMARY: Blueprint reading and basic shop math training. Mandatory for some workers, voluntary for others. Outcome regarded as beneficial to company and workers, and plans are to continue. Detected literacy deficiencies addressed by instructors through individualized attention, e.g., one participant given oral pre- and post-test.

INDUSTRY (SIC): Plastics Products (3089) PROGRAM: Yes

LOCATION: Suburban Detroit

EMPLOYMENT SIZE: 425 (at 4 locations)

DATE(S) OF SITE VISIT: May 17, 1991

HISTORY OF THE PROGRAM: The program was instituted simultaneously with (although not necessarily because of) major restructuring into self-managed teams and TQM approach. The company received a $50k subsidy from the state and had put together a curriculum that combined job-related training and basic skills, although much more emphasis on the former. The training was in early stages at the time of the site visit.

CHANGE EVENTS/RESTRUCTURING: The firm is an automotive supplier and very strongly feels that its future viability depends on higher workforce productivity to be achieved through synchronous manufacturing and self-managed teams. Implementation of a "pay for skills" program.

PROCESS FOR ASSESSMENT OF WORKERS: The program is operated in conjunction with a community college that assessed all workers, but did not share the results of the assessment with the company.

GENERAL DESCRIPTION OF THE PROGRAM: The program was a formal sequence of courses covering technical, job-related subjects. Basic skills training was provided as needed to enable an understanding of the subject. For example, most workers needed math "brush-up" as a prerequisite to SPC training. This was provided formally as part of the SPC course. Additional basic skills development was done by coworkers in a tutoring mode.

PROVIDER TYPE: Community college

SUBJECT(S): Math, problem solving, reading (as needed)

INSTRUCTION TYPE: On-site classes that were highly interactive; all participants required to work on group projects

NUMBER OF PARTICIPANTS: All production workers take at least some of the classes; e.g., SPC.

RELEASE TIME: For on-site classes (one-two hours per week); no release time for preparation outside of class, individual tutoring, or classes taken at the community college

EVIDENCE OF IMPACT: Management has observed better team performance and improved interpersonal behavior. Supervisors also cited improved interpersonal skills, but also noted less turnover and more worker promotions. Employees were generally negative about the training; complaining that only a few workers would benefit from the technical training, SPC was done by the quality control staff, and the "pay for skills" program was inequitable.

CASE STUDY SUMMARY: This firm had fully subscribed to team production and synchronous manufacturing techniques and was making major strides toward their adoption. However, it was difficult to see how the job-related and basic skills training and the "pay for skills" program would supplement these activities. It wasn't clear that the firm's management had a clear vision of how they fit together either; they were learning by doing. The state subsidy was instrumental in involving all workers, and considerably less training would be undertaken without it.

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INDUSTRY (SIC): Plastics Products (3089) PROGRAM: Yes

LOCATION: Grand Rapids MSA

EMPLOYMENT SIZE: 396

DATE(S) OF SITE VISIT: September 5, 1991

HISTORY OF THE PROGRAM: The corporation's CEO heard a presentation on problem-solving and then delved into the literature. As a result, all employees now take a problem-solving seminar. The program has been in existence for approximately six years in response to the firm's efforts to meet and exceed customers' demands for quality and to support restructuring to self-managed work teams.

CHANGE EVENTS/RESTRUCTURING: Growth, quality improvement demands by automotive customers, and restructuring to self-managed work teams. Management wants to eliminate middle management and supervision as a "waste".

PROCESS FOR ASSESSMENT OF WORKERS: Program is mandatory for all workers and their eligibility for a bonus hinges on completing the program.

GENERAL DESCRIPTION OF PROGRAM: The program consists mainly of a class in basic problem solving. Pre- and post-tests are given. The firm budgets annually $1000 per employee for training, and has encouraged the use of those funds to support literacy tutoring for a very few workers (2 or 3).

PROVIDER TYPE: Internal—the problem solving course is designed and taught by company employees. Literacy tutoring is provided by outside tutors paid by the company.

SUBJECT(S): Basic Problem Solving and literacy tutoring

INSTRUCTION TYPE: Classroom, group oriented, and highly interactive.

NUMBER OF PARTICIPANTS: An estimated 750-800 people have taken the problem solving course since its inception. There are 10-20 people in each class and 8 classes are taught per cycle in order to cover all shifts.

RELEASE TIME: Full release time is provided—2 hours twice a week for 4 weeks to complete a basic problem solving course. Release time is also offered for literacy tutoring.

EVIDENCE OF IMPACT: Pre- and post-tests in the problem-solving course indicate a typical improvement of 41%. Some workers felt the problem solving was not of much direct benefit to their jobs, but supervisors reported moderate to significant improvement in workers' ability to communicate, get along with each other, work as teams, and produce quality work with greater efficiency. Management detected improvements in the quality of teamwork and output. The employees involved in the literacy tutoring had mixed reactions; they felt they were improving their reading skills, but didn't feel they had the support of the company.

CASE STUDY SUMMARY: The firm trains all workers in basic problem solving to give them the background for team problem solving and prepare them for restructuring into self-managed work teams. The focus is on growth, improved quality and improved productivity. To a much lesser degree, literacy tutoring is offered to those workers that need and want it. The literacy tutoring is offered in the belief that it leads to better employees, and indirectly helps company loyalty and reduces turnover. The firm training budget of $1000 per employee per year was highly unusual, and furthermore the company gave employees considerable discretion in how the money got spent.

INDUSTRY (SIC): Plastics Products (3089) PROGRAM: No

LOCATION: Suburban Detroit

EMPLOYMENT SIZE: 150 at site visited, and 100 at another site

DATE(S) OF SITE VISIT: August 15, 1991

WHY NO PROGRAM: The firm prefers to hire low-skill production workers and train them to do the job, rather than paying high wages for skills or training for non-job-related skills. Basic skills deficiencies are not a problem for this firm. If they are a problem with a particular worker, that worker is fired or shifted to a less demanding job. No changes are foreseen that will raise basic skills issues.

CHANGE EVENTS/RESTRUCTURING: The firm has implemented SPC to satisfy automotive customers, but basic skills deficiencies were not a barrier to training workers in SPC techniques.

CASE STUDY SUMMARY: The firm does not offer any basic skills training and does not plan to do so. They have not found basic skills deficiencies to be a handicap. They are satisfied with the low-skill/low-wage workers they hire and train to do production jobs.

INDUSTRY (SIC): Fabricated Metal Products (3462) PROGRAM: Yes

LOCATION: Jackson MSA

EMPLOYMENT SIZE: 221

DATE(S) OF SITE VISIT: June 5, 1991

HISTORY OF THE PROGRAM: The program began two years before the site visit. In response to demands for increased quality and the introduction of SPC, the firm decided to upgrade the workforce and provide basic skills training. Assistance from a community college and a state grant of $72K made it possible.

CHANGE EVENTS/RESTRUCTURING: Introduction of SPC and TQM

PROCESS FOR ASSESSMENT OF WORKERS: All employees were tested using MESA (Microcomputer Evaluation and Screening Assessment) by the community college staff.

GENERAL DESCRIPTION OF PROGRAM: Designed to meet the needs of the firm based on assessment results and consultation with management. All workers below a certain assessment level required to take the training; others could volunteer. Classes at the work-site.

PROVIDER TYPE: Community College

SUBJECT(S): Shop math and reading

INSTRUCTION TYPE: Classroom, group oriented with individual attention. Highly interactive.

NUMBER OF PARTICIPANTS: 60 in shop math; 20 per class cycle

RELEASE TIME: 100% at base pay rate. Some workers resentful of time away from job because on the job they can earn a piece rate bonus.

EVIDENCE OF IMPACT: Supervision noted improved ability to use SPC. Management liked to use the assessment tool to screen new applicants. Employee reaction was mixed. Some felt their jobs were in jeopardy if they didn't perform well in class.

CASE STUDY SUMMARY: The availability of a state grant and assistance by a community college motivated the firm to start the program. The firms wants to generally upgrade the skills of the workforce to gain a competitive edge. Impacts have been marginally positive. Hiring standards have been raised, and continuance of the program without the subsidy is doubtful.

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INDUSTRY (SIC): Fabricated Metal Products (3462) PROGRAM: Yes

LOCATION: Suburban Detroit

EMPLOYMENT SIZE: 79

DATE(S) OF SITE VISIT: July 2, 1991

WHY NO PROGRAM: The firm recognizes that some workers have basic skill deficiencies and that these are detrimental to operations, but they are not considered a serious enough problem to demand solution. The firm lacks a personnel infrastructure for dealing with these issues, and doesn't know how to go about arranging a training program.

CHANGE EVENTS/RESTRUCTURING: The firm has not experienced any recent changes and does not foresee any changes or restructuring that would create a need for basic skills training. SPC was incorporated a number of years ago with on-the-job tutoring for basic math.

CASE STUDY SUMMARY: This is a stable firm being successful with no dramatic growth or restructuring. While some workers could do a better job with improved basic skills, it is not a problem to the firm and the firm does not see a need to offer any training.

INDUSTRY (SIC): Miscellaneous Machinery, Except Electrical (359) PROGRAM: Yes

LOCATION: Suburban Detroit

EMPLOYMENT SIZE: 75

DATE(S) OF SITE VISIT: May 13, 1991 and December 9, 1991

HISTORY OF THE PROGRAM: Two years before the site visit, with the assistance of a county economic development group, the plant relocated and began a training program with a state grant of $25K. Prior to this, basic skills training was done in-house on an irregular schedule, but business expansion made this no longer possible.

CHANGE EVENTS/RESTRUCTURING: Plant relocation; acquisition of high technology machinery.

PROCESS FOR ASSESSMENT OF WORKERS: All workers were assessed by a community college using an instrument called ASSET.

GENERAL DESCRIPTION OF PROGRAM: Based on the assessment, courses were provided in basic math, basic English, and reading. Additional job-related material is included in the overall program, and instruction is a combination of on-site classes, off-site classes, and home study. The firm covers some of the cost, particularly the English and reading classes, which were not included in the grant.

PROVIDER TYPE: Community college

SUBJECT(S): Basic shop math, metrology, basic English, reading, basic machining, and advanced machining.

INSTRUCTION TYPE: Classroom and home study

NUMBER OF PARTICIPANTS: 55 assessed; 18 finished shop math; 13 in metrology; and 6 finished reading.

RELEASE TIME: On-site class time, but not off-site class time or home study time.

EVIDENCE OF IMPACT: Workers reported that the math helps them on the job and also off the job. They feel that because of the training, they can work more independently. Management has observed gains in individual workers, but feels it is still too early to measure any improvement in productivity or profits.

CASE STUDY SUMMARY: The program started with aid of a county economic development group and a community college with a state grant. Basic math, English, and reading are included. The firm contributes to the cost by providing the literacy classes. All parties are pleased with the results and plans are to continue, at company expense, after the grant expires.

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INDUSTRY (SIC): Miscellaneous Machinery, Except Electrical (359) PROGRAM: Yes

LOCATION: Suburban Detroit

EMPLOYMENT SIZE: 99 at the site-visit plant; 70 and 70 at two other sites.

DATE(S) OF SITE VISIT: July 10, 1991

HISTORY OF THE PROGRAM: A couple of years before the site visit, the firm recognized a need for training and implemented a program through a community college and a state grant. Earlier, such needs were addressed through in-house training, but at this time the firm was too busy with other concerns to spend time on training, and assistance was available.

CHANGE EVENTS/RESTRUCTURING: Recent transition from job-shop to high volume production. Introduction of new high technology machine tools.

PROCESS FOR ASSESSMENT OF WORKERS: Needs assessment for shop math done by a community college.

GENERAL DESCRIPTION OF PROGRAM: Participation was voluntary. Courses were taught at a training facility near the workplace. Classes were two hours long and scheduled at shift change time so both shifts could participate.

PROVIDER TYPE: Community college.

SUBJECT(S): Basic shop math, shop theory, basic machining, and geometric tolerances.

INSTRUCTION TYPE: Classroom, group oriented and highly interactive.

NUMBER OF PARTICIPANTS: 35 completed the program

RELEASE TIME: 50%; one hour paid release time and one hour contributed by the employee once a week.

EVIDENCE OF IMPACT: Some employees felt they benefitted a lot, others not so much, depending on experience and tenure with the company. Employee satisfaction was generally low. They work a lot of overtime and the training seemed an extra burden. Supervisors observed significant improvements in morale, error rates, quality, and safety. Management noticed improvement in blueprint reading; none in error rates.

CASE STUDY SUMMARY: The program was designed by a community college, and supported by a state subsidy. Implementation was rushed and not widely supported by management and supervision. The firm was extremely busy and had to rush to complete program before funding expired. Impact was marginal, and future similar programs without subsidy doubtful.

INDUSTRY (SIC): Miscellaneous Machinery, Except Electrical (359) PROGRAM: No

LOCATION: Suburban Detroit

EMPLOYMENT SIZE: 106

DATE(S) OF SITE VISIT: July 12, 1991

WHY NO PROGRAM: The firm hires low-skill, low-cost labor and trains to do the job. There is very high turnover among entry level workers. Management feels that reading and English language deficiencies are a serious problem for the firm, but the cost, particularly in release time is too high. Turnover and lack of training infrastructure are also deterrents.

CHANGE EVENTS/RESTRUCTURING: Expanding markets and sales; new technology; and team work concepts, introduced 3 years ago.

CASE STUDY SUMMARY: The firm does not offer basic skills training although there are some problems attributable to basic skills deficiencies. A course in reading and math was investigated recently, and management decided it was not feasible because of release time cost, turnover, and lack of personnel infrastructure.

INDUSTRY (SIC): Electric Lighting and Wiring Equipment (364) PROGRAM: Yes

LOCATION: Battle Creek MSA

EMPLOYMENT SIZE: 325

DATE(S) OF SITE VISIT: September 4, 1991

HISTORY OF THE PROGRAM: The firm started up the site visit plant in 1987 and the production workforce was staffed through the assistance of a community economic development program. All applicants receive pre-hire training that includes basic skills.

CHANGE EVENTS/RESTRUCTURING: Start up of new plant.

PROCESS FOR ASSESSMENT OF WORKERS: All potential applicants given assessment of basic skills (with TABE).

GENERAL DESCRIPTION OF PROGRAM: All entry production workers were, and continue to be hired from a pool of temporary workers who have received 48 hours of pre-hire training in skills including basic skills. Those who score below 8th grade level in the basic skills assessment are trained with PLATO. After hire, training continues with 40 hours of basic job orientation training during the first two weeks of employment.

PROVIDER TYPE: Combination of community economic development organization, local community college, and a local vocational school.

SUBJECT(S): Shop math and communications in addition to general job-related subjects.

INSTRUCTION TYPE: Some basic skills through a computerized instructional system called PLATO. Other training is in a classroom.

NUMBER OF PARTICIPANTS: 236 since inception of the program; normally 30 per cycle.

RELEASE TIME: None for the pre-hire training; 100% for the post-hire 40 hours of training (although, this is mostly job-specific)

EVIDENCE OF IMPACT: The pre-hire training was touted by management as an excellent screening device for hiring production workers. Workers reported gains in self-confidence and thought the training has value as an introduction to the company, although they felt much of the training was not particularly useful on the job.

CASE STUDY SUMMARY: All applicants for production jobs at this new plant must receive pre-hire training which includes basic skills and basic skills remediation. Completing the training is no guarantee of being hired. The program effectively screens out low-skilled applicants. The future of the program is uncertain because community economic development subsidies are being discontinued.

INDUSTRY (SIC): Electric Lighting and Wiring Equipment (364) PROGRAM: No

LOCATION: Battle Creek MSA

EMPLOYMENT SIZE: 398

DATE(S) OF SITE VISIT: October 2, 1991

WHY NO PROGRAM: Entrant level workers lacking the basic skill prerequisites for on-the-job and job-specific training are simply not hired. Workers are hired from a pool of temporary workers who have already been trained on-the-job and already had their job performance evaluated. Furthermore, high school completion or GED is a requirement for hiring.

CHANGE EVENTS/RESTRUCTURING: This firm was established in 1985, incorporating modern production techniques, SPC, and work-team organization. No restructuring is foreseen.

CASE STUDY SUMMARY: This relatively new firm was organized at the outset with a modern production structure and has not experienced any changes nor does it expect to. The workforce was hired with all the basic skills needed by the firm, and so far there has been no shortage of adequately skilled workers. Hence the firm does not need any basic skills training and does not expect to need any in the near future.

INDUSTRY (SIC): Electric Lighting and Wiring Equipment (364) PROGRAM: No

LOCATION: Kalamazoo MSA

EMPLOYMENT SIZE: 302 at site-visit plant; 80 at another site

DATE(S) OF SITE VISIT: July 23, 1991

WHY NO PROGRAM: Cost, lack of infrastructure, and the belief by management that workers are responsible for solving their own problems.

CHANGE EVENTS/RESTRUCTURING: Management change within last couple of years. Implementation of a TQM-type program. Production workers receive considerable cross-training that is formalized and used in determining promotions.

CASE STUDY SUMMARY: This firm recognizes that some workers are deficient in basic skills, but does not feel it is the responsibility of the company to provide the training. Workers are encouraged to improve their skills and keep up-to-date, but for basic skills, they would have to do it on their own through a tuition reimbursement program.

INDUSTRY (SIC): Hotels, Motels, and Tourist Courts (701) PROGRAM: No

LOCATION: Northern Lower Peninsula

EMPLOYMENT SIZE: Firm owns 2 hotels and 3 restaurants with a total of 475 employees (which includes 100-120 core, year-round staff; 80 full-year, part-timers; and 300 seasonal, part-timers)

DATE(S) OF SITE VISIT: May 29, 1991

WHY NO PROGRAM: The company does not perceive a need for it and the company is engaged in a highly competitive industry that is characterized by low wages, low benefits, and high turnover. Basic skills training would be an unnecessary expense.

CHANGE EVENTS/RESTRUCTURING: None.

CASE STUDY SUMMARY: The management indicated that most non-managerial occupations were unskilled and had high turnover. Communications skills were important in many of the positions, but the individuals were screened on this at time of hire, and there were excess applicants to choose from.

The firm held the educational system in high esteem, and felt that basic skills deficiencies were the natural consequence of variation in peoples' abilities. The firm views itself as benefitting individuals with low basic skills by providing them with employment.

INDUSTRY (SIC): Hotels, Motels, and Tourist Courts (701) PROGRAM: No

LOCATION: Northern Lower Peninsula

EMPLOYMENT SIZE: 200

DATE(S) OF SITE VISIT: August 12, 1991

WHY NO PROGRAM: This hotel was originally built in the 30's, but recently underwent a total refurbishing. The management had planned to provide considerable basic skills training, but the time pressure to reopen the facility during tourist season precluded the training. Furthermore, the management felt that the workers didn't need basic skills training, the firm didn't have the personnel infrastructure to deal with it, and the firm couldn't afford the costs.

CHANGE EVENTS/RESTRUCTURING: A new owner, who completely refurbished the hotel during the year prior to the site visit; some automation of jobs.

CASE STUDY SUMMARY: A first-class, year-round hotel whose new managers realized the importance of customer relations, so the communications skills of all employees were of concern. Communications skills were screened at the time of hiring and a 4-hour training session on communications and customer relations was given to all employees.

INDUSTRY (SIC): Hotels, Motels, and Tourist Courts (701) PROGRAM: No

LOCATION: Northern Lower Peninsula

EMPLOYMENT SIZE: 15

DATE(S) OF SITE VISIT: August 13, 1991

WHY NO PROGRAM: The enterprise that owned and operated this small motel found that it could require a high school diploma or equivalent and fully staff it operations. Basic skills training was seen as unnecessary for its current employees.

CHANGE EVENTS/RESTRUCTURING: None.

CASE STUDY SUMMARY: The area where this motel was located had a considerable unemployed labor force to draw from, so the motel could easily screen out low skilled individuals, and chose to do so.

INDUSTRY (SIC): Hospitals (8062) PROGRAM: Yes

LOCATION: South Central

EMPLOYMENT SIZE: 607

DATE(S) OF SITE VISIT: June 18, 1991

HISTORY OF THE PROGRAM: Mandatory training in workplace safety revealed that some workers had reading deficiencies and could not read warning labels on containers of hazardous materials. Secondly, workers expressed the desire to become more self-sufficient in their jobs so they could work with less supervision. On a volunteer basis, the workers are encouraged to participate in literacy training.

CHANGE EVENTS/RESTRUCTURING: Recent years have brought major management changes and increased competition.

PROCESS FOR ASSESSMENT OF WORKERS: No formal assessment.

GENERAL DESCRIPTION OF PROGRAM: Workers are encouraged on a volunteer basis to participate in Adult Basic Education courses at the local Adult Education facility. The firm cooperated by adjusting work schedules and allowing changes in hours to avoid conflicts with class schedules.

PROVIDER TYPE: Local public schools adult education program.

SUBJECT(S): Adult Basic Education, including reading, writing, math, and for some individuals, ESL.

INSTRUCTION TYPE: Classroom with individual attention as required by student.

NUMBER OF PARTICIPANTS: 4 currently.

RELEASE TIME: None

EVIDENCE OF IMPACT: Both workers and their supervisors felt that those participating in the program are now able to do their jobs with less supervision.

CASE STUDY SUMMARY: Workers identified as having deficiencies in reading and English language skills were encouraged on a voluntary basis to participate in the local school Adult Basic Education program. The firm contributes by giving encouragement, support, and adjusting work schedules to fit class schedules. The training costs are covered by federal funds for ABE. There is virtually no cost to the firm. The few workers participating and the firm are benefitting because the workers are able to work more independently and with less supervision.

INDUSTRY (SIC): Hospitals (8062) PROGRAM: No

LOCATION: Kalamazoo MSA

EMPLOYMENT SIZE: 300

DATE(S) OF SITE VISIT: June 27, 1991

WHY NO PROGRAM: Management, supervisors, and workers all indicated that they felt there were deficiencies in basic skills, but cost for release time, turnover, and lack of training infrastructure were all cited as reasons why training is not offered. The present level of functioning in the departments where deficiencies exist is perceived to be adequate, and no foreseeable changes will raise basic skills issues.

CHANGE EVENTS/RESTRUCTURING: There was significant downsizing recently and the firm is embarking on a major facility expansion and upgrade program.

CASE STUDY SUMMARY: While basic skills deficiencies among some workers are recognized as an area needing improvement, the need is not great enough now to warrant the cost of a training program or even serious investigation into what the cost would be.

INDUSTRY (SIC): Hospitals (8062) PROGRAM: No

LOCATION: South Central

EMPLOYMENT SIZE: 59; 39 full-time equivalent

DATE(S) OF SITE VISIT: September 11, 1991

WHY NO PROGRAM: The firm does not perceive a need for any basic skills training, and secondarily it is involved in a tough financial struggle to survive and such training is an unnecessary expense.

CHANGE EVENTS/RESTRUCTURING: The firm is in a struggle for survival. There has been a recent change in management and reduction of workforce.

CASE STUDY SUMMARY: This firm does not believe it has a need for any basic skills training, and furthermore its financial condition now is too tenuous to even consider any cost not absolutely necessary.

INDUSTRY (SIC): Hospitals (8062) PROGRAM: No

LOCATION: South Central

EMPLOYMENT SIZE: 750; 630 full-time equivalent

DATE(S) OF SITE VISIT: September 27, 1991

WHY NO PROGRAM: The firm is satisfied with the level of basic skills and does not see a need for this kind of training. The firm recently surveyed management about worker skills (not an assessment of workers) and concluded that training was not necessary. Slight problems with workers' ability to read, write, orally communicate, work together as a team, and solve work-related problems were perceived by the respondents, but not to the degree of seriously handicapping their work performance. For entry level workers, work ethics is considered a more serious deficiency than basic skills.

CHANGE EVENTS/RESTRUCTURING: Major growth, and recent adoption of Total Quality Management (TQM)

CASE STUDY SUMMARY: The firm has looked into the need for basic skills training of its staff and is satisfied with the conclusion that although there is room for improvement, the training is not needed.

FIRMS PARTICIPATING IN PHASE II CASE STUDIES

INDUSTRY (SIC): Plastics Products (3089) PROGRAM: Yes

LOCATION: Flint MSA

EMPLOYMENT SIZE: 187

DATE(S) OF SITE VISIT: April 23, 1992

HISTORY OF THE PROGRAM: The firm joined an educational partnership with other firms and a community college using federal funds on a 10% co-pay basis to provide skills training to workers. Workers from this firm began the training in October, 1991. Training is continuing now, but federal funds will be discontinued in October 1992, and the future of the program is uncertain.

CHANGE EVENTS/RESTRUCTURING: Expanded plant, advanced technology, just-in-time shipments.

PROCESS FOR ASSESSMENT OF WORKERS: College placement tests: Nelson-Denny reading test, a writing sample, and a departmental math test.

GENERAL DESCRIPTION OF PROGRAM: Classes meet for 10 weeks and include 45 hours of instruction. Classes are held at a central location for workers from several partner companies. Computers are used heavily in math, reading, and writing classes. Achievement standards are set and those who do not reach standard level may repeat if they wish. Classes are scheduled in early morning and late afternoon to serve all 3 shifts. Some workers received special encouragement to participate, but the program is open to all workers on a voluntary basis.

PROVIDER TYPE: Community college.

SUBJECT(S): Basic math, reading, writing, problem solving, communications, and human relations.

INSTRUCTION TYPE: Classroom, computerized instruction, each class customized by the instructor to the needs and abilities of the class members.

NUMBER OF PARTICIPANTS: 31 total; typically 10-12 per class cycle.

RELEASE TIME: 50% plus participants are reimbursed at 50% wage rate for their own contributed time.

EVIDENCE OF IMPACT: Supervision observed that workers are more open and more inclined to ask questions about their work. A payroll clerk noted that errors in time cards are less frequent. Management has noted improvement in ability to communicate, in company loyalty, and morale. Also error rates are lower, and workers seem better able to handle new technology.

CASE STUDY SUMMARY: The firm entered the program upon contact by a community college and entered a partnership with the college and other firms for worker education. The firm contributes 10% of the cost with the balance federally-funded. Those workers who volunteered to participate have made positive gains. The expiration of the federal funding makes future basic skills training uncertain.

INDUSTRY (SIC): Educational Services (8221) PROGRAM: Yes

LOCATION: Detroit MSA

EMPLOYMENT SIZE: 22,000

DATE(S) OF SITE VISIT: April 28, 1992 and May 21, 1992

HISTORY OF THE PROGRAM: The program was begun in the mid 1970's to address the needs of workers lacking high school completion. It is strictly voluntary. Participation has had ups and downs and is currently at a low ebb. Due to decentralized management of the institution's departments, support and encouragement of participation has varied with changes in individual managers.

CHANGE EVENTS/RESTRUCTURING: Budget cutbacks and implementation of Total Quality Management (TQM) in some departments.

PROCESS FOR ASSESSMENT OF WORKERS: Any worker lacking high school diploma is eligible.

GENERAL DESCRIPTION OF PROGRAM: Instructional material is primarily focused on Adult Basic Education (ABE) and preparation for the General Education Development (GED) tests. Classes are for two hours, twice a week, and are customized to the needs of the participants in each class. The program is funded by federal money available for ABE and GED education, and in a small degree by the institution in release time and providing classroom facilities.

PROVIDER TYPE: Public school community education department.

SUBJECT(S): Reading, writing, English language, basic math, and other ABE and GED requirements.

INSTRUCTION TYPE: Classroom, with individualized attention; highly interactive, and self-paced.

NUMBER OF PARTICIPANTS: Has ranged from 150 to 6 per year.

RELEASE TIME: Varies with policy of participants' department head. Estimated that 80% of participants received release time early in program; but is now estimated to be 20%. Some departments offer 100% release time, others none.

EVIDENCE OF IMPACT: Managers and supervisors reported gains in reading, communication, morale, attitude, ability to work together, and reduction of error rates. Other observers and participants saw large improvement in self-esteem. Adults who had had conflicts with schools and education at an early age discovered new abilities.

CASE STUDY SUMMARY: In a large institution, the program serves the needs of those workers who lack a high school diploma. Education is available at the workplace in ABE and GED at no cost to the worker except their time in some cases. The program is flexible and attempts to meet individual needs. Participants are enthusiastic and there are many anecdotes of improved job-performance and changed lives resulting from the program.

INDUSTRY (SIC): Transportation Equipment (3714) PROGRAM: Yes

LOCATION: Detroit MSA

EMPLOYMENT SIZE: 1122 union members at one location that was visited

DATE(S) OF SITE VISIT: June 1 & 2, 1992

HISTORY OF THE PROGRAM: Inaugurated jointly by union and company in early 1980's as the result of collective bargaining negotiations. Initially intended to retrain displaced workers, the program expanded to cover numerous benefits, including a skills enhancement program. Funded by $.15 total from each labor hour worked, with $.10 funding a national center, and $.05 funding the local program at each plant.

CHANGE EVENTS/RESTRUCTURING: New technology, increased emphasis on quality, and restructuring to work teams and employee involvement.

PROCESS FOR ASSESSMENT OF WORKERS: Various, depending on specific plant location and need being addressed.

GENERAL DESCRIPTION OF PROGRAM: The national center contracts with a local provider to conduct the skills enhancement program at each local plant. Local guidance and control is provided by a local joint union-company committee. Program active in approximately 60 plants nationwide. Subject matter for the program is wide open depending on desires and needs of the workers and approval of the local joint committee. Focus is on education rather than training, and the subject material is only loosely job-related or not related at all. Confidentiality of individual participation is a key element of program.

PROVIDER TYPE: Local public schools, community college, or university.

SUBJECT(S): Widely ranged from basic literacy, GED or high school completion, or shop math, to foreign language or creative writing.

INSTRUCTION TYPE: Both classroom and one-on-one tutoring. Individualized instruction widely used.

NUMBER OF PARTICIPANTS: At example plant visited: 150-180 per year; approximately 1000 since inception (includes repeated participation—not a count of individuals).

RELEASE TIME: None

EVIDENCE OF IMPACT: There is much anecdotal evidence of beneficial impacts. There is no attempt to relate program to productivity or profits.

CASE STUDY SUMMARY: This is a large program operated jointly by the company and union providing skills enhancement education for hourly workers in approximately 60 plants. The program is funded by $.15 per labor hour worked, a negotiable figure. There is a great deal of flexibility with specific subjects covered determined by workers' need and desires, approved by local plant joint union-company committee. Instruction is largely individual and self-paced with confidentiality of individual participation preserved.

INDUSTRY (SIC): Business Services (7389) PROGRAM: Yes

LOCATION: Flint MSA

EMPLOYMENT SIZE: 70 permanent plus up to an average of 25 temporary workers.

DATE(S) OF SITE VISIT: June 10, 1992

HISTORY OF THE PROGRAM: The firm joined an educational partnership with other firms and a community college using federal funds on a 10% co-pay basis to provide skills training to workers. Workers from this firm began the training in February, 1992. Training is continuing now, but federal funds will be discontinued in October 1992, and the future of the program is uncertain.

CHANGE EVENTS/RESTRUCTURING: Change of ownership 5 years ago, quintupling growth, plant expansion, planning restructure to self-directed work teams.

PROCESS FOR ASSESSMENT OF WORKERS: College placement tests: Nelson-Denny reading test, a writing sample, and a departmental math test.

GENERAL DESCRIPTION OF PROGRAM: Classes meet for 10 weeks and include 45 hours of instruction. Classes are held at a central location for workers from several partner companies. Computers are used heavily in math, reading and writing classes. Achievement standards are set and those who do not reach standard level may repeat if they wish. Certain workers were singled out for special encouragement to participate because it was felt that their job performance would be enhance by skills development.

PROVIDER TYPE: Community college.

SUBJECT(S): Basic math, reading, writing, problem solving, communications, and human relations.

INSTRUCTION TYPE: Classroom, computerized instruction, each class customized by the instructor to the needs and abilities of the class members.

NUMBER OF PARTICIPANTS: 6 from this firm.

RELEASE TIME: 100%

EVIDENCE OF IMPACT: Supervision observed moderate improvements in reading, computation, communications, reduction in error rates, and noticeably improved morale, loyalty, and worker-management relations. Management noted significant impacts in communication, computation, problem-solving, and morale.

CASE STUDY SUMMARY: The firm entered the program upon contact by a community college and entered a partnership with the college and other firms for worker education. The firm contributes 10% of the cost with the balance federally funded. A select group of workers volunteered to participate and have made positive gains. The expiration of the federal funding makes future basic skills training uncertain.

INDUSTRY (SIC): Chemicals and Allied Products (2899) PROGRAM: Yes

LOCATION: Suburban Detroit

EMPLOYMENT SIZE: 59 permanent employees plus 20-200 temporary workers.

DATE(S) OF SITE VISIT: June 23, 1992

HISTORY OF THE PROGRAM: Began in early 1992 after the plant manager became aware of resources available from a community adult education facility. A learning center was established at the workplace that is staffed by an instructor from the community adult education unit.

CHANGE EVENTS/RESTRUCTURING: Technological changes; adoption of SPC; beginning restructuring to self-directed work teams.

PROCESS FOR ASSESSMENT OF WORKERS: All workers were assessed and interviewed initially, and those who volunteered to participate were assessed with TABE.

GENERAL DESCRIPTION OF PROGRAM: The on-site learning center is staffed by a certified adult-ed teacher from 1 to 4 PM, four days a week. Classes follow the day shift and precede the afternoon shift. All workers are eligible, including temporaries. Funding is from the state for those lacking high school completion.

PROVIDER TYPE: Public schools adult education division.

SUBJECT(S): Reading, writing, basic math, and some ESL.

INSTRUCTION TYPE: Self-paced and highly interactive

NUMBER OF PARTICIPANTS: The program started with 25, but has dropped to 9 participants.

RELEASE TIME: None

EVIDENCE OF IMPACT: Supervision reported improvement in worker attitudes and ability to perform on the job. Management reported that participants are tending to become the leaders in their work groups. Significant impacts were observed in improved communications and problem solving skills. Notable, also, are improved company loyalty and morale, better relations between management and workers, and better teamwork.

CASE STUDY SUMMARY: The firm is making use of available community adult education resources to train workers in basic skills of math, reading, writing, and ESL. Training is voluntary and open to temporary workers as well as permanent employees. This is the only firm encountered that provided training to temporary, non-corporate staff. Significant gains have been observed by supervision and management. The program is likely to continue and expand, but initial decline in participation has been disappointing.

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